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ABSTRACT

This collection is intended to help planners, administrators, and student service professionals gain a better understanding of the changes emerging in student services as it demonstrates how innovative leaders are responding to these challenges. Part 1, "Creating the Student-Centered Experience," contains: (1) "Innovation in Student Services" Best Practices and Process Innovation Models and Trends" (Darlene J. Burnett); (2) "Delivering the Brand Experience: Keeping the Promise" (Cynthia Wheatley); and (3) "Removing the Barriers to Education: Creating a Service Model for the Working Adult Student" (Ayla Guvenoz). Part 2, "Charting the Course," contains: (4) "Creating a Student-Centered Culture" (Jim Black); (5) "On the Leading Edge: Implementation Begins" (Audrey Lindsay and Leo Fernig); (6) "Integrated Service Delivery: In Person and on the Web" (Beth Pellicciotti, Anne Agosto-Severa, Mary Ann Bishel, and Paul McGuiness); 7) "Generalists in Cooperation with Specialists: A Working Model" (Dennis V. Day and Julie Pitts); and (8) "Layers of Learning: Planning and Promoting Performance Improvement and Action Learning" (Diane Foucar-Szocki, Laurie Harris, Rick Larson, and Randy Mitchell). Part 3, "Maintaining Strategic Focus," contains: (9) "Student Service Standards: Valuing Contact" (Kristine E. Dillon); (10) "Change beyond Change: The Next Iteration of Enrollment Services" (Thomas Green, Nancy Jefferis, and Regina Kleinman); (11) "Living with Change: The Implementation and Beyond" (Jim Kreinbring); (12) "Enrollment Services E-Business Strategy and Development" (Susan Nalewaja, Van Voorhis, and Tina M. R. Fuller); (13) "Five Years Later: Maintaining Strategic Focus" (Linda M. Anderson); and (14) "Continuous Improvement" (Frank E. Claus). Part 4, "Staying on the Technology Innovation Curve," contains: (15) "Designing Web-Based Student Services—Collaboration Style" (Pat Shea and Burnie Blakeley); (16) "Building the Digital Infrastructure To Transform Services" (Cynthia M. Hadden, John C. Borner, and Robin R. Ethridge); (17) "Web-Stop Shopping" (Donald D. King, Jr., Michael E. McCauley, and Phillip M. Shaffer); (18) "A Web-Based Freshman Advising and Registration System" (Gary L. Kramer, Erlend D. Peterson, Clark Webb, and Patricia Esplin); and (19) "Transforming

Online Services into a Web Portal" (Diane Cook, Shan W. Evans, and V. Shelby Stanfield). Part 5, "Transforming Services into a Web Portal with Intelligence and a Conscience" contains: (20) "MyUB: A Personalized Service Portal" (Robert M. Wright, James Gorman, and Rebecca Bernstein); and (21) "Empowering Students through Portfolio Management" (J. Michael Thompson, Margaret Heisel, and Lisa Carras). Part 6, "Moving Forward,: contains: (22) "From Connections to Community" (Diana G. Oblinger); and (23) "Sustaining the Commitment to Change: Success in the Long Run" (Earl H. Potter, III). Each chapter contains references. (Contains 75 figures.) (SLD)

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Innovation in Student Services

Planning for Models Blending High Touch/High Tech

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Edited by
Darlene J. Burnett and Diana G. Oblinger

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Published by
SCUP *Society for College and University Planning*

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Foreword

How do institutions change the existing models for delivery of student services? What makes a practice become a best practice? Several lessons have emerged from our best practice institutions. First and foremost is focus: services are shifting from student interactions focusing solely on "transactions" to student interactions concerned with the "customer experience" and building lifelong relationships. High touch/high tech environments are creating the opportunity for institutions to redefine the service relationship with students. Sometimes this utilizes enabling technologies such as the Web or processes such as redesign. In addition, institutions are experiencing a culture shift and are devoting renewed attention to how student services are delivered. As a result, they are achieving desired outcomes. Processes, services, and interactions are being redefined from the students' perspective. To support the move to a truly student-centered environment, institutions are ensuring that student service staff have the tools, training, and enabling processes needed to do their job.

The authors of this book have shared a wealth of information and knowledge based on experience and results. They discuss both in-person and Web services. In each chapter, experts and administrators, all IBM Best Practice Partners, explain the particular challenges their institutions faced and the methods they used. This is a practical guide—a collection of case studies and step-by-step advice that reaffirms the importance of cross-disciplinary teamwork, communication, and enabling technologies.

The Society for College and University Planning (SCUP) is an umbrella organization dedicated to helping institutions plan for the changes demanded by the 21st century and its students. SCUP members span many specialties—academic, information technology, facilities planning, fiscal and resource allocation. They share the philosophy that cross-boundary planning is integral to the health and vitality of higher education.

This book is intended to help planners, administrators, and student service professionals gain a better understanding of the changes emerging in student services and demonstrate how innovative leaders are successfully responding to these challenges. No single approach will work for every institution. The culture, values, and traditions of each institution will shape its unique direction, emphasis, and focus on the high touch/high tech options. To succeed, each institution must assess its current status; define the vision for where it wants to go; and then design the processes, technologies, and organizations to support its goal.

As you strive to create a high touch/high tech student service environment for your institution, I hope this book—and the experience of these leading institutions—will be a valuable resource.

David E. Moran
Vice President & Education Industry National Practice Executive
IBM Higher Education

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Part I

Creating the Student-Centered Experience

Innovation in Student Services: Best Practices and Process Innovation Models and Trends

Darlene J. Burnett

IBM began researching best practices and innovations in student services in 1995 and created the IBM Best Practice Partner group in 1996. The charter members of this group are Babson College, Ball State University, Boston College, Brigham Young University, University of Delaware, University of Minnesota, University of Pennsylvania, and the Western Interstate Commission on Higher Education (WICHE). The group has grown and now represents 23 institutions, each sharing one or more leading innovations in student services.

Since it was formed, the IBM Best Practice Partner group has held an annual Student Services Forum to provide an opportunity for collaboration and information exchange with leaders in the field. The forum creates an environment that provides a holistic, horizontal view of student services. Each of the partner institutions has undergone a culture shift, moving to provide services from a student perspective rather than an internal institutional perspective.

One of the first steps in creating any innovation in student services is to invert the view of services. This innovation not only requires a shift in the view of how and why services are provided, but also a shift in how the services are delivered. The institutional perspective shift puts the student at the center of every interaction. This perspective helps identify which processes are no longer needed, which organizations require restructuring, which policies no longer relate, and what information the staff need to conduct their interactions with the student. The focus of student-centered services is to ensure that each student's "touch point" with the institution provides the quality, accuracy, and responsiveness expected by today's students, whom many think of as customers.

Sharing their experiences with other institutions, the Best Practice Partners compiled *Planning for Student Services: Best Practices for the 21st Century* (Beede and Burnett 1999). This book follows up those experiences with examples of how institutions have sustained the changes, updates on current innovations, and the lessons learned over the past three years. In addition, new partners present their best practice models, innovations, and trends for student services (see Figure 1.1).

Observations and Trends

George Fisher, the former CEO of Motorola, summed up the existing perspective of most organizations and the obstacles facing colleges and universities as they redesign their services for students:

> Organizations are not built to serve customers—they are built to preserve

---

Darlene J. Burnett *is an independent consultant who helps institutions create student-centered experiences and an environment that enables the delivery of high tech/high touch services. She brings an in-depth knowledge of higher education, having spent the last 13 years working with institutions on a range of issues. She has managed the best practices forum, has written numerous publications, is a frequent presenter at conferences and campus events, and continues to consult with IBM for best practices in student services. For an extended biography, see "Editors" on page 277.*

Student Services Trends	Ball State University	Boston College	Brigham Young University	Carnegie Mellon University	James Madison University	Johnson County Community College	Louisiana State University	Purdue University Calumet	Seton Hall University	Tufts University	University at Buffalo, State University of New York	The University of British Columbia	University of California	University of Minnesota	University of North Carolina at Greensboro	University of Pennsylvania	University of Texas at Austin
Change/Organizational Management	●	●	○	●	●	●	●	●	●	●	○	●	○	●	●	●	●
Student-Centered Services	○	●	●	●	●	●	●	●	●	●	○	●	○	○	●	●	●
One-Stop Service Centers	●	●	●	●	●	●	○	●	●	●	○	●	○	○	●	●	⊙
Redesigned processes	○	●	●	●	●	●	⊙	●	●	●	○	●	○	○	●	●	⊙
Generalists/Specialists	○	●	●	●	○	●	⊙	●	●	●	○	●	○	○	●	●	⊙
Cross-functional teams	○	●	⊙	●	●	○	⊙	●	●	○	○	●	○	○	●	●	⊙
Measurable outcomes	○	●	●	●	○	○	○	●	○	○	○	●	○	○	●	○	⊙
Web Portal	○	●	⊙	●	○	●	●	○	○	○	●	●	●	●	●	○	●
Personalized	●	●	○	⊙	○	●	●	○	○	○	●	●	●	●	●	○	●
Customized	●	●	○	⊙	○	●	●	○	○	●	●	○	●	●	●	⊙	●
Community oriented	○	●	⊙	⊙	○	●	●	○	○	○	○	●	●	●	○	○	●
Process oriented	○	●	○	⊙	○	○	○	○	○	○	○	○	●	●	●	○	●
Service Support Center (telephone)	○	●	◉	◉	○	●	●	○	○	●	⊙	●	○	●	◉	●	●
Customer Relationship Management	○	○	○	⊙	◉	⊙	●	●	○	○	○	○	○	○	○	⊙	○
Document Management	○	●	○	◉	●	●	●	○	○	○	○	○	○	○	○	○	●
Back Office Process Redesign	○	●	○	⊙	●	●	●	●	○	○	⊙	●	○	●	●	●	●
Year Recognized	1996	1996	1996	1998	2001	1999	2000	2000	1997	2000	2001	1998	2001	1996	1999	1996	1999
In production	●																
Implementing	○																
Planning	◘																
Designing	⊙																
Not intended	◉																
Charter Partner																	

Figure 1.1 Best Practice Partner Trends

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internal order. To customers, the internal structure may not only mean very little, it may serve as a barrier. Organization charts are vertical, and serving the customer is horizontal.

How, then, do institutions change the existing models for delivery of student services, and what do they do to achieve a best practice in student services?

The experiences of the leading colleges and universities in this book illustrate a variety of considerations. New themes have emerged that are critical to differentiating an institution from the competition and meeting the expectations of today's service-oriented students. What has become apparent as each institution discusses its innovations are the following key trends:

- Service perspectives are shifted 180 degrees when the institution views all services from the external perspective of the student/customer instead of the internal perspective of the institution.
- Processes are redesigned from the student's/ customer's perspective.
- Technology is applied to improve processes only after they have been redesigned.
- Enterprise Resource Planning systems are implemented to gain the greatest benefit for staff and students and reap the best return on investment after processes have been redesigned.
- Barriers to information are removed by providing integrated information access to disparate databases and systems for both staff and students.
- Networks and Internet access are designed to scale as the volume of traffic increases with new Web services.
- The Internet can provide a foundation for strategic change within the institution and should be considered in all aspects of interactions with students, staff, and faculty.
- A consistent institutional brand image is presented in all printed material and on the institution's Web site.
- Consistency and excellence of the service experience are developed at each touch point (in person or via e-mail, telephone, or Web services).
- As the institution learns more about the expectations of its students and the needs of staff, an evolving student service model is planned to provide those services.
- Services are true to the culture and values of the institution.
- The focus of services shifts from transactional to experiential.
- Organizations recognize that significant changes to delivery of services must be strategic to the institution and have the full support of and participation by the executive team.

Brand and image. Perhaps the most important trend is brand-identity. Brand and image are an institution's currency; the brand must be consistent regardless of how the student/customer interacts with the institution. In the past, an institution's brand image was defined by the written material sent to students or by the student's first visit to the campus. Today, students/ customers are more likely to form their first impression of an institution after visiting its Web site.

Yet regardless of the first point of contact, every interaction with a student/customer must deliver the same quality of service and focus on experience and added value. The majority of institutions have no clear Web strategy, consistency of navigation, or brand image presented from page to page. Furthermore, Web usage is not often integrated with the institution's strategic plan, information technology plan, strategic enrollment management plan, or marketing and public relations plan. All of these plans must be considered to create a consistent brand image.

In chapter 2, Cindy Wheatley discusses how the Walt Disney Company has built a consistent brand image into all of its ventures, whether at Disneyland, Walt Disney World, the Disney stores, or the Disney Web site. It's possible to glean ideas from consumer-oriented Web sites, particularly those with online shopping capabilities, which can be excellent examples of trends in Web features and design. For example, online merchandiser Amazon.com has excelled in developing personalization tools for its customers, including recommendations based on previous purchases and e-mail communications for promotions and other programs. Cataloger Lands' End has also developed a state-of-the-art Web site, with features like "Lands' End Live," which allows users to participate in a live Web chat or phone chat. Because so many students and prospective students are intimately familiar with the

Web these days, it's easy to imagine that they would expect the same levels of service at their college or university's Web site that they receive at consumer sites. Many of the features could be modified to apply to an institutional setting online: the Lands' End "Shop with a Friend" service might be "Register with a Friend." Likewise, "My Personal Shopper" could become "My Personal Advisor."

Creating and sustaining change. A second key trend involves creating and sustaining the changes that have improved services and then providing a means of continuous improvement. This often requires a change in the culture of the institution. The perspective of services must shift from the internal focus of institution-based rules and policy enforcement to the external view of providing success-based interactions with the student/customer.

This type of change involves a two-pronged effort: the first is to provide services from the student's perspective (process redesign), and the second is to train and support staff in providing those services. The staff must view their roles differently and have the support of the institution in delivering services. They must also participate in the initial development of the new services and be accountable for their continual improvement. To sustain the changes created from process redesign, new technology, and/or new organizations, the institution must develop staff support and a learning environment.

James Madison University, for example, has created the Neighborhood, an integrated, experiential action learning framework. It is a competency-based model that uses a participatory process. The University of North Carolina at Greensboro, with its belief that human capital is its most precious resource, is focusing on three levels—individual learning, team learning, and campus learning—and has created a learning organization at the core of its Enrollment Services project. Another institution, Purdue University Calumet, believes that organizational change starts by changing mental models. Mental models reflect how the staff sees the world, their jobs, or any process. Purdue University Calumet has designed a competency-based learning model with modular certifications and continuous training. Its service teams meet monthly and continue to identify ways to improve service delivery.

In chapter 23, Earl Potter discusses the three phases that employees must pass through from the introduction of a proposed change to institutionalization of that change: preparation, acceptance, and commitment. Employee participation and buy-in at each stage is critical to institutionalizing and sustaining change.

Lifelong relationships. A third trend is the movement to build lifelong relationships with students. Colleges and universities often initiate their relationship with prospective students and their parents, teachers, and counselors as early as middle school. Studies indicate that building relationships early with prospective students improves the institution's chances of admitting, registering, and retaining them. In fact, the earlier the relationship is established, the greater the odds of admitting and retaining.

The Internet is proving to be an excellent channel for initiating relationships with students and continuing them after graduation. For example, the University of California's UC Gateways project, discussed in chapter 21, allows middle and high school students to track their progress online toward eligibility for admission. Students can build a college-going portfolio and interact with their personal university counselors and advisors. The portfolio emulates an electronic file cabinet with individual file folders. The student's file cabinet, called My Backpack, contains the following electronic folders: My Classes/Grades, My Plan, My Test Scores, My Information, My Activities, My Messages, and My Success Team. The portfolio creates a precollegiate support system and set of interactive tools. Another electronic file cabinet contained in the portfolio is success teams, which contains electronic folders of success stories targeted to the specific environment and characteristics of the student. In addition, students may take a series of online surveys that help them understand their learning styles, career interests, and personalities. UC Gateways empowers high school students to assess their own college-going status and to plan accordingly. By establishing these early relationships, the University of California is better able to accomplish its goal of attracting and retaining targeted cohorts of students.

Other universities have used the Internet to establish and improve their relationships with students as well. Louisiana State University, the University of Texas at Austin, and the University of Minnesota are among several institutions that have created personalized Web portals that not only enhance the institution's relationship with its students, but also provide for

communities of users that improve student/customer satisfaction and loyalty.

In chapter 22, Diana Oblinger discusses the benefits and importance of institutions creating customer relationship management (CRM) systems, particularly by capitalizing on connections and developing lasting relationships. It is becoming increasingly important for institutions to move away from transactions with many discrete information systems and business processes and toward a CRM process that initiates a relationship with every student/customer, with a view to maintaining a mutually rewarding connection for the long term.

Technology to support and improve the student/customer experience. A fourth key trend concerns technology. In the past, new technology has been installed over existing processes. While this may improve the speed, accuracy, and efficiency of existing processes, it typically has little significant impact on the end result of services with customers or staff. Technology systems are still in unconnected islands; each person continues to conduct his or her business in the same manner. In addition, there is often an absence of integration with other plans and strategies at the institution.

This is a bit like some of the roads found in older cities. Many roadways were originally animal paths named for their purpose or landmarks (deer pond, rush creek, mountaintop, frog leap). Over the years, cities and towns have paved those paths into roads and highways and retained the names. These roads meander. There is no logical reason for the direction they take or the names attached to them. For newcomers, navigating the area is more difficult because the original names for the paths no longer apply.

The same is true of student services. We have hardened the paths and processes of services by overlaying technology without significantly changing the processes for their delivery. Student services have evolved over the past 50 to 100 years at each institution. Originally, the available technology was limited, and processes were typically completed manually. As a result, vertical silos of function developed. But what made sense then may no longer work now. Today, colleges and universities can create or update processes that best fit their students' needs and meet expectations that are consistent with their institutional culture and values. Automating or Web-enabling processes can dramatically improve services for students and the delivery of those services for staff.

Don't pave your institution's cow path; instead, create a new, logical, planned path for services and select technology to complement the end objectives. Web service isn't about the technology; Web service is about what can be accomplished with the technology. Applying modern technology in new ways can provide unprecedented levels of customer service.

The Shift in Student Services

A best practice model focuses on the following:

- Customer/student satisfaction and success
- Service processes from the student's perspective
- Added value with each person-to-person transaction
- Choice (time, place, and service contact)
- Variety of models for one-stop centers
- Variety of models for Web portals
- Self-service, generalists, specialists (70 percent self-service, 20 percent generalists, 10 percent specialists)
- Empowered, skilled frontline staff
- Cross-functional teams
- Service model seen as strategic to the institution
- Executive support and participation
- Shift from transactions to relationship

The criteria used to identify innovation in student service models and to select the IBM Best Practice Partners follows the categories established by the Baldridge National Quality Program for the 2000 Education Criteria for Performance Excellence. Seven categories are considered: leadership, strategic planning, student and stakeholder focus, information and analysis, faculty and staff focus, educational and support process management, and organization performance results.

One-Stop Student Centers

There are a variety of one-stop service center models, each one reflecting the culture, values, and mission of its institution. According to David E. Hollowell, executive vice president of the University of Delaware, the primary reason for creating a one-stop center was to address students' concerns about university services. These concerns included the impression that they were being given the run-around and the perception of an uncaring

staff, a lack of teamwork among offices, and a lack of tools to get the job done.

"Improving the way the University of Delaware serves its students has been an institutional priority since 1988," says Hollowell. The university designed one of the first one-stop service centers within higher education and has served as a model for many of the centers created since then.

One-stop centers are about helping students make decisions in a number of areas. They provide a combination of paper information, Web services, and personal support from generalists and specialists. To say that an institution offers admission, registration, financial aid, and bursar functions in a one-stop center would under-represent what really takes place. Each of the Best Practice Partners that provides one-stop services has a combination of services that best fit its objectives, its students' needs, and its institutional culture. Some examples of the services offered appear in Figure 1.2.

Students typically want to choose the method by which they interact with their institution. Those who choose to have a face-to-face interaction expect more than a transaction—they expect added value and a positive experience. They expect the staff person with whom they interact to be knowledgeable and caring and to have the correct information. They want the interaction to result in complete problem resolution in a single meeting.

To meet these students' expectations, the staff member must have a breadth of knowledge spanning multiple areas, such as admissions, registration, and financial aid. Many models call this person a generalist. The generalist must have the technology at his or her fingertips to access the information needed to resolve the question or request. The technology must integrate all of the disparate databases and systems that house student information. Typically, the generalist doesn't answer phone calls or do other work that would distract from attending to the immediate needs of the students. Most one-stop models assume that 70 percent of student interactions will take place with self-service, 20 percent with a generalist, and 10 percent with specialists.

Many institutions are developing the generalist position into a new career path and are promoting individuals from specialist jobs in other areas. As part of the generalist's ongoing training, many institutions rotate them through each of the specialist job areas. In addition to possessing so many different skills and areas of expertise, the generalist also must enjoy meeting and serving the public. Jim Black, associate provost for enrollment services at University of North Carolina at Greensboro, calls it the "service heart."

Among the trends of one-stop centers are the following:

- Generalists (20 percent), specialists (10 percent), and self-service (70 percent)
- Redesigned service processes
- Added value with each interaction (move from transaction to relationship)
- Consistent, positive brand experience
- Cross-functional teams
- Technology to support information access of student and university data
- Flexible space
- Measurements of effectiveness and success
- Back office process redesign, document management and workflow

Again, one can look outside education for other models to help define our future directions. Companies such as Nordstrom, Walt Disney, Southwest Airlines, and the Four Seasons Hotels have all focused on the customer experience with every personal interaction. They are noted for providing excellence in service and for creating a positive, memorable experience.

It is very important when designing a one-stop center to create flexible space. One of the lessons learned by some of the first institutions to implement one-stop centers (including Boston College, Seton Hall University, and Southern Alberta Institute of Technology) was that, as more services are offered over the Web, the volume of business at the one-stop center decreases. As a result, other needs have become apparent. One of those needs is the call/e-mail center. Students with questions about services want to interact with staff either by e-mail or phone. Thus, some of the space allocated within the one-stop center has been repurposed to support the call center. In some cases, the generalists are rotated from the front counter to the call/e-mail centers. The goal is to provide the same level of excellence in service and experience if the student chooses to contact the call center for help. Like one-stop centers that have expanded hours to accommodate in-person requests, the hours of

Recruiting functions	▪ Recruiting information, both printed and electronic ▪ Displays of general college or university brochures ▪ Preadmissions counseling ▪ Acceptance of admissions applications ▪ Origination of campus tours ▪ Explanation of "virtual tours"
Admissions functions	▪ Acceptance of admissions applications ▪ Preadmissions counseling ▪ Transfer student counseling ▪ International student counseling
Financial aid functions	▪ Displays of scholarship and financial aid information ▪ Evaluation of financial need and determination of eligibility ▪ Access to and help with electronic scholarship ▪ Free Application for Federal Student Aid (FAFSA) displays and help completing FAFSA ▪ General financial aid assistance ▪ Financial aid counseling ▪ Work-study placement ▪ Information on the cost of attending college ▪ Loan counseling
Registration functions	▪ Assistance in scheduling classes ▪ Enrollment verification ▪ Request for change of majors and other records functions ▪ Receipt of official and unofficial transcripts ▪ Information on classes, class schedules ▪ Information on add-drop ▪ Information on degree audit
Academic advising functions	▪ Scheduling courses ▪ Guidance on coursework ▪ Referral to other university services ▪ Career assistance ▪ Information on degree audit ▪ Information on study abroad ▪ Information on tutoring
Counseling functions	▪ Personal counseling ▪ Career counseling
Bursar (student accounts) functions	▪ Fee payments ▪ Review of student accounts ▪ Review and assistance with all financing options ▪ Installment payments ▪ Loan counseling ▪ Financial decision and support
Career services functions	▪ Information on placement of graduates ▪ Career counseling ▪ Job search assistance in person and on the Web ▪ Resume help ▪ Interviewing assistance ▪ Job listings ▪ Recruitment activities ▪ Information on internships and co-op experiences
Other service functions	▪ Student ID card production ▪ Information on meal plan ▪ Information on telephone services ▪ Information on parking ▪ Information on online services ▪ Information on technology services

Figure 1.2 Examples of One-Stop Center Services

the call/e-mail center have to be flexible as well, as much of the business transacted on the Web occurs outside normal business hours.

Seton Hall implemented a Customer Response Team (CRT), which recognizes that students come to the institution for service interactions in a variety of ways—on the phone, in person, via the Web, and by mail. The CRT is integrated and equipped to respond through all of these avenues and offer the same level of attention to each.

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The University of Minnesota began providing a new venue for services when it introduced one-stop Web services. At that time, creating one-stop centers on campus wasn't anticipated. But even with the integrated Web services, students still needed to visit several locations in person to complete various processes with the university. Transcript requests, tuition and fee information, payment, financial aid, and registration were all handled in different offices, even different buildings. For example, a student who wanted to register had to visit at least four different buildings on campus at least once. The solution for the University of Minnesota was to add one-stop service centers (there are three) to the array of options for interaction. Now, students can visit an advisor either in person or via e-mail and then register on the Web or go to a one-stop service center.

Boston College was among the first institutions to offer both a one-stop center and Web services, and it continues to look for practices to improve services for students and parents. Recently, it has been focusing on the back office processes of student services and is redesigning those processes, working with FolderWave to radically change the way financial aid requests are processed and technology applications are developed and deployed. FolderWave, a document management system piloted in spring 2001, was fully implemented in the 2001–2002 academic year. Its elimination of the paper process should result in improved financial aid decision making as well as exceptional service to parents and students. For Boston College, this project has brought together new Web technologies and integration tools as well as the use of an application service provider model and business outsourcing.

Web Portals

Web portals are becoming strategic to the institution. In a report titled *Higher Education Enterprise Portals: Profiles of an Emerging Provider Class*, Gartner (1999) projects that by fall 2005, 80 percent of U.S. colleges and universities with enrollments of more than 1,000 FTE students will have implemented Web portals.

Under the leadership of Robert Kvavik, professor and associate vice president and executive officer, the University of Minnesota has been a leader in providing student services via the Web. According to Kvavik:

> Portals and e-business are first and foremost about improving service to ensure enduring relationships with students, staff, and faculty. They give each user a unique, personal, and preferred perspective of the university. Portals and e-business are about community building, and especially the development and nurturing of learning communities. Portals and e-business afford us the opportunity to transform key business processes through the use of Internet technologies to improve service to customers.

When trying to define or describe the criteria for a portal, a commonly used description is one suggested by Gartner, that is, it must include the following four Cs:

- Connection to the resources of the Internet through search engines, shopping engines, and other utilities
- Content in the form of appropriate news, entertainment, and instruction for interested users
- Commerce involving access to electronic shopping and other commercial activities
- Community involving ground rules and tools that define a community of interest and enable participants to interact.

In general, a portal provides a Web environment that is organized, customized, and personalized so that each individual has access to communities of interest and personalized resources.

When describing the path institutions have taken, the typical development of Web services has four generations. These generations advance from the internal view of the institution, which mirrors the physical organization of services, to a situation in which the Web is used to create an experience and a relationship between the institution and the student. The beginning of a true Web portal is created in the third generation.

Generation 1: Content (Organized from the internal institutional view, terminology and organization mirror the physical organization and processes of the institution.) Most college and university Web services began and still reside in Generation 1. While there are valid reasons for the physical silos (admissions, registration, financial aid, bursar, academic support services, and student support services) within institutions, those silos have been mimicked and represented on the Web, although the physical boundaries don't apply. The information (content) resides on the institution's Web site in silos,

and students are expected to navigate the site in the same manner that they were asked to move around the physical campus.

Typically, institutions have no cohesive Web strategy and little or no collaboration among departments. Web pages have no consistent look and feel. Navigation changes from information silo to information silo. The students/customers using the Web site must find information and services based on the internal organization—they have to know the makeup of the institution and follow that organizational flow online.

A typical home page of an institution using Generation 1 Web services includes many of the following categories: Admissions, Academic Programs, Colleges and Departments, Administration, Athletics, Library Services, Campus Services, Registration, Financial Aid, Scholarships, Calendars, Directions, Directories, Campus Life, Resources and Services, About the University, and Letter from the President. While the student now has access to information via the Internet, the process of providing services to the student has not changed—there is no integrated view.

Generation 2: Content in Context (Organized by internal processes and organization within customer segments.) Generation 2 Web sites are organized by customer segment (prospective students, current students, visitors, faculty and staff, alumni). Beyond the first page of a Generation 2 Web site, however, content continues to be defined by internal terminology and organization. For current students, for example, the topics that might be on the second page (the first page after Current Students) include Academic Calendar, Announcements, Bookstore, Campus Events, Campus Maps, Catalogs and Handbooks, Colleges and Programs, Courses Search, Dining Services, Final Exam Schedule, Forms, Library Services, and Student Organizations.

Channeling information appropriate for current students into one page can help users navigate the Web site. But beyond the second page, there is generally no consistent look or feel or consistent navigation. The information is still organized from the institution's perspective with the institution's terms. Information is geared toward a generic student.

Generation 3: Customization, Personalization, and Community (Organized from a student-centered view and transaction-based). Generation 3 Web sites deliver the true promise of Internet technology and redesigned services to the student. To accomplish this level of service, institutions must commit to Web services being strategic to the college or university. Four excellent examples of customized, personalized Web sites are Personal Access Web Services (PAWS) at Louisiana State University, UT Direct at the University of Texas at Austin, MyUB at the University at Buffalo, and MyOneStop at the University of Minnesota. These institutions have created the equivalent of the physical one-stop service center on the Web. The sites are branded, have a cohesive look and feel, have consistent navigation, and are considered strategic to their institutions. The virtual one-stop centers go well beyond what a physical center can offer and integrate the services and functions from many silo organizations. Students can create their own personalized and customized Web portal within their university's Web site, designating certain information and functions as important to them. This "my" utility provides students with the opportunity to manage their information, interactions, and transactions with the institution.

The University at Buffalo describes MyUB as providing a personalized portal service that makes the university as big as a student needs and as small as a student wants. Previously, the resources were either not available or available in silos of niche Web sites, each with a different look and feel, navigational scheme, organization, nomenclature, and search capabilities. MyUB serves as an online coaching and mentoring system to make sure that UB students have access to the resources they need when they need them. It complements what the human advisor can provide by bringing the wide resources of the university to the student's fingertips at any time of the day or night. Rather than providing a set of passive, fixed links for all students, MyUB provides customizable information and links that make sense, depending on the student's needs at that time.

Generation 3 Web sites deliver transaction-based services. The institutions designing these services use customer-centered design criteria, test the intuitiveness of the design, and continually add services and improve usage. Generation 3 Web services for students will help distinguish an institution and will be the norm and expectation of entering freshmen by 2005.

Generation 4: High Tech/High Touch (Organized to create a positive experience and

relationship with the institution.) Generation 4 Web services deliver the brand experience of the institution. They also provide an opportunity for the institution to create a long-term relationship with the student/customer. Generation 4 goes beyond transaction-based services and focuses on generating a positive experience. The combination of high tech and high touch delivered via the Web has the ability to create lifelong customer loyalty.

The characteristics of Generation 4 Web services are as follows:

- *Process orientation:* processes that have been redesigned from the students'/customers' perspective. The University of Delaware has done an excellent job of redesigning the processes for prospective students on its Web site. Carl Jacobson, director of management information systems, is leading the way in creating step-by-step redesigned process guides to assist prospective students and their parents through the rigors, and the sometimes-unfamiliar requirements, of admission to the university. In the same way that processes have been redesigned for physical one-stop centers, Web sites are changing as well. The University of Delaware site presents prospective students with information about the university and the application process (including making plans to visit the campus in person or via a virtual tour), planning their academic program, choosing a major, and so on. The redesigned processes of the Web site go well beyond the transactions required of the prospective student by initiating interaction with the university. This extends the brand experience whether the student goes to the physical one-stop center or accesses the Web site.
- *Decision-making guide:* based on a series of questions and feedback from students, the list of options for a student that is distilled into those that meet the specific individual's criteria. With the sheer volume of information available from an institution's Web site, it becomes very important to provide filters so users can sort out information that isn't of interest. The University of Texas at Austin provides an excellent example. It has created the UT Austin Job Search, a decision-making guide that offers users the option of choosing the number of hours a week they want to work, job interests, keyword searches, salary, days of the week, job titles, or specific department. Once again, the system assesses the volume of information and only the information meeting the student user's needs is funneled onto his or her Web screen. With each generation of Web services, a filter is applied to the mass of information to narrow what the student sees and interacts with. Each successive generation of Web services applies additional filters to eliminate unnecessary information.
- *Personalized recommendations:* based on knowledge and information about the individual. As discussed earlier, the University of California has created UC Gateways, a Web-based portfolio based on knowledge and information about the individual. As early as middle school, students can set up and maintain their personal information. Each student's personal portfolio, My Backpack, allows them to track and report classes and grades, create an education plan, report test scores, list their strengths, communicate with their success team, and list their activities (see Figure 1.3). One of the most important components of UC Gateways is personal interaction and recommendations. UC Gateways provides students, parents, school counselors, and the personal university success team with the means to communicate and interact over a number of years. Each student is assigned a team of individuals, a success team, from the university. This team calls, e-mails, and keeps track of their students. UC Gateways promotes a dialogue between the student, his or her school counselor, and the success team. The success team has a list of students with whom it communicates on a regular basis. Not only does UC Gateways provide for personalized recommendations, it also demonstrates decision-making guides, step-by-step process flow, enhanced community, and proactive communications. It truly brings high touch to delivering services via the Web. For additional information about UC Gateways, see chapter 21 by Michael Thompson, Margaret Heisel, and Lisa Caras.
- *Proactive communications:* an online coaching and mentoring system that ensures students have access to the resources they need when they need them. MyUB, the University at Buffalo Web portal, not only allows students to personalize and customize their portals, it also initiates

Strengths

These assessments can help you explore your academic and career interests and aptitudes. To learn more about on, or to take a particular questionnaire or survey, click on the underlined name below.

Name	Questions
Career Pathways	72
College STEAM Trial: an exercise for College Readiness	50
Gateways Quiz	10
Holland Occupational Themes	18
How do I learn best? Learning Styles Inventory	13
Multiple Intelligences Survey	9
Personality Type Questionnaire	44
Work Values Inventory	40

Figure 1.3 UC Gateways My Backpack, Strengths

communications to the students based on time-sensitive and life events. E-mail and other communications are sent to students based on personal events, such as gaining enough hours to qualify for graduation, becoming eligible for a class with a waiting list, time to register, and financial aid dates.

- *Enhanced community:* services to support a specific cohort of students. Brigham Young University's Web-based Student Planning Systems offers significant help to freshmen. It includes a separate registration for freshmen and a Virtual New Student Orientation program. Unlike many other systems, the system at BYU is holistic and based on a horizontal or flat infrastructure rather than a hierarchical or vertical infrastructure. By placing the student at the head of the organizational chart, the model resembles technologically what most institutions attempt but have difficulty implementing: a seamless system of educational services dedicated to first-year students.
- *Real-time interaction with the institution:* live chats and help lines. With so many services to students being delivered via the Web, new issues have arisen. Students now choose to use the Web for the majority of their service interactions with their institution. How do they communicate on the Web with service providers to ask for help or assistance? One way is to incorporate real-time online chat sessions. At the University of North Carolina at Greensboro, live chat sessions began in July 2001 using Groopz, a Web chat software that allows visitors to the university's Web site to interact in real time. Groopz allows the university to catalog and push the answer to frequently asked questions to students and take Web site visitors to a URL rather than simply give them the URL. Groopz also notifies the UNCG services personnel when a guest has been on a Web page for an extended time, giving UNCG the option of "reaching out and touching them" or waiting until they click on a help button. Communication with Web site visitors is recorded in a history log and can be retrieved to track responses from visitors or see what information was provided.

To go beyond Generation 3 Web portal service, high-touch mechanisms need to be added. With live chat sessions, students can be on the Web, open a live chat, and communicate with a real person to help with their questions. Other institutions, including Boston College, Seton Hall University, and Southern Alberta Institute of Technology, have call centers staffed by generalists who can answer questions while the student is on the Web.

Important Web trends. Over the next three years, we will see the majority of colleges and universities offer "my" portals for personalized, customized information. What will distinguish a university from their competition will be the level of high touch they can integrate. With more services being delivered via the Web, it becomes increasingly important to be able to have real-time interaction (e.g., live chats) with generalists, advisors, and counselors. In addition, it is important that call centers be established with the same quality of skills and expertise as the generalists in the one-stop centers. It will be critical that service processes be updated and integrated to respond to e-mails, phone calls, or live chat sessions. Once the mechanisms are in place to deliver service transactions over the Web, the next critical step is to provide experiences and relationships that deliver a consistent brand of services. What is very apparent is that creating a Web portal is only the beginning of how

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an institution will interact with its students in providing Internet services.

Conclusion

Creating best practices and innovation in student services isn't a one-time project. It requires an ongoing commitment from the executive cabinet of the institution. As the experiences presented in this book demonstrate, institutions must be willing to adapt and experiment. There must be an expectation that changes will occur each year, as lessons are learned about the services provided and the new expectations of students.

Historically, colleges and universities have had a strong commitment to service. Today and tomorrow's challenge is to ensure that this service culture puts students first.

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2

Delivering the Brand Experience: Keeping the Promise

Cynthia Wheatley

In their book *The Experience Economy*, Joseph Pine and James Gilmore (1999) describe a critical shift from a service economy, which is transactional, to an experience economy, which is relational. Companies no longer merely deliver goods or services; they deliver intangible experiences that engage and involve the consumer at an emotional level. At their best, claim Pine and Gilmore, these experiences are transformational—changing the behaviors, values, and pursuits of individuals. They trace the source of the experience economy to one man: Walt Disney.

From the beginning, Disney always looked for ways to engage his audience through color, sound, and, finally, a theme park experience in which you can actually be part of the movie rather than passively watch it. In describing Disneyland to potential financial backers, Disney said, "It will be a place for people to find happiness and knowledge" (Thomas 1994).

What do institutions of higher education and Disneyland have in common? Disney's description of a place to find "happiness and knowledge" could just as easily apply to college and university campuses. College is the ultimate immersion experience, where people come together to live, learn, and be transformed. Education aims to change people's lives by actively engaging them in a learning experience. But Disney is also a business that understands the value of customer loyalty. Pine and Gilmore's research confirms what millions of Disney guests already know: customers who feel they are part of something larger than themselves are more likely to return. Institutions of higher education are ideally suited to deliver what Pine and Gilmore have found to be the service secret: memorable, engaging experiences that change people's lives and produce lifelong loyalty.

The Service Culture

The lack of one critical element often prevents colleges and universities from achieving memorable, engaging experiences: a cohesive culture. To deliver a consistent experience, an organization must have a robust culture. In a service organization, that culture is focused on the end user. All functions in a service organization are aligned to create and nurture a single message. Think of the biggest names in customer service and you can pair them with a single descriptor: Federal Express—speed, Ritz Carlton—elegance, L.L. Bean—ease, Disney—happiness. These companies foster their messages throughout their organization so that a customer always has the same experience. Institutions of higher education need to ask themselves, "What word would best describe our students' experience? What word would we like them to use?" A word such as "community," "discovery," and "service" could be the cornerstone of an institution's culture, but the key is that the word must become part of the day-to-day operation.

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Service cultures aren't manifest only in their friendly attitudes. Service cultures are orchestrated systems in which technology, human resources, and physical resources are all aligned and prepared to deliver service to a customer whenever and wherever that service is needed. Disney has succeeded at achieving its high level of customer satisfaction by controlling every element of the service environment and leaving nothing to chance.

In a service culture, the hierarchy is inverted: the most important person in the company is on the front line serving the customer. After all, the front line is the bottom line. Everyone else in the company supports that person. In a service culture, people understand the experience they are there to deliver and are given the knowledge, tools, and power to deliver it. In a service organization, marketing and training are well integrated so that when a promise is made to the customer in a marketing campaign, the idea is marketed internally as well. We treat our employees as we want them to treat our customers. The key to creating a sound service culture is integration; everything within an organization must be connected to one central concept—the brand.

Power of the Brand

An organization's brand is more than a marketing image; it is its identity. The brand is a covenant between an organization and its customers. It's a promise of value, of a relationship, of uniqueness. Do business with us and we will deliver value for the cost, create an emotional bond with you, and give you something you can't get anywhere else. For United Airlines the "friendly skies" was just a clever slogan; for Southwest Airlines it became part of their culture. In a service culture, the brand isn't at the front end of the organization—it's at the center. The brand is communicated at every point of contact and is visible in everything the customer sees, feels, hears, touches, and smells. The brand is an intangible quality, an essence, an experience. As Michael Eisner, CEO of the Walt Disney Company, puts it, "A brand is a living entity, and it is enriched or undermined cumulatively over time, the product of a thousand small gestures" (Eisner 1998).

Defining the Brand Promise

Building a strong brand is a twofold process: defining the brand promise and delivering the brand experience. The brand promise answers the question: "Why are we in business?" It's not a mission statement; it's a value proposition. The brand promise communicates to customers and employees alike the organization's guiding values and core competencies. At Walt Disney World they built a castle—not the one in the Magic Kingdom, but the one where potential cast members come to apply for a job. The Casting Center is designed to communicate the brand promise of magical experiences to new cast members from first contact. When he created Disney University after opening Disneyland, Walt Disney understood the need to build a service culture that would support his brand. He told those first cast members that their job, first and foremost, was to create happiness. That "service theme" is still communicated in Disney orientation classes at both Disneyland and Walt Disney World. From break rooms to waiting rooms, a strong brand promise is visible everywhere in an organization.

Institutions that want to define their brand promise need to ask themselves the following questions:

- *What is our value?* A college education is one of the largest investments an individual will make in his or her lifetime. What are you promising your students in return for their investment? The University of Phoenix has built its education empire on the promise of convenience, whether at their bricks and mortar local campuses or their clicks and mortar online programs. Based on that simple promise, they have become one of the largest institutions of higher education in the world and have gained the loyalty of thousands of working professionals.
- *What are the emotions we tap into?* People make buying decisions based on emotion. Nike is about more than shoes: it's about the average person as athlete. Starbucks is more than coffee: it's a lifestyle choice. The promise should be designed to nurture an emotional bond with the customer and his or her life goals.
- *What differentiates us in the marketplace?* The brands we choose speak to what we value. Do you drive a Volvo (safety) or a BMW (performance)? Do you own a Mac (individuality) or a PC (universality)? What would your students say about why they chose your institution? What would you like them to say?

Delivering the Brand Experience

Many companies think their work is done once they have defined their brand. They have forgotten what every good athlete understands: power is in the follow through. The brand promise will bring customers in the door, but the brand experience will bring them back. If an organization does not keep its promises and deliver the brand experience to each and every customer from first contact, it will not earn customer loyalty. Following are the qualities of the brand experience:

- *It is memorable.* The key is to bring the brand promise to life. The brand experience is distinguishable from the brand promise in that it is memorable. Experiences build lasting memories that a customer will draw upon in making future buying decisions. Saturn Corporation understood this when it created a hassle-free car buying process and then capped it with a photo of the new owner and the new car to lock in the emotion.
- *It is personal.* No two people will have the same experience. At Walt Disney World, cast members are trained to treat each guest like a VIP, a very *individual* person. Customers want choices, personal interaction, and to be recognized as an individual.
- *It is multidimensional.* Experiences are sensory, involving and engaging people at many different levels. The brand can be experienced in a variety of ways and during each and every point of contact, no matter how mundane.

Delivering the brand experience requires "operationalizing" your service culture, ensuring consistent delivery through planning, building a strong service infrastructure, and training. It requires aligning the customer experience and the employee experience with the brand promise.

Engineering the Customer Experience

Guests at Walt Disney World's Magic Kingdom can hear the forlorn whistle of the turn-of-the-century steam train as they get off the monorail. The sound of ragtime music grows louder as they approach the train station and pass through to Main Street, USA. The architectural detail on the Victorian buildings and the clanging of streetcars transport them to another time and place. As they walk down Main Street, the music gets louder and the smell of chocolate chip cookies fills the air. By the time they reach Cinderella Castle, they are in a heightened emotional and sensory state. That is the Disney experience, and it occurs 365 days a year. Its consistency is a testament to careful planning, design, and orchestration. No detail has been overlooked in the effort to engineer the guest experience. Attention to detail is the hallmark of the Disney approach.

Expand the Product

But which detail to pay attention to? The key lies in expanding the product, widening the scope of what the customer experience actually includes. At a theme park, the product is more than the ride, it is also parking, buying tickets, asking directions, and waiting in line. Each of these is a discreet experience that can either add to, or take away from, the customer's satisfaction. Attention to detail is key to remaining on top. One example at Disney is its trash cans. Since its promise is cleanliness, trash cans are essential to delivering on that promise. But trash cans could detract from the "show." So Disney paints them to blend into the theme of the particular area. Consequently, there are more than 56 different varieties of trash cans in the Magic Kingdom alone. Does Disney make money off its trash cans? Will guests ever notice them? They'll only notice if they aren't there. In fact, Disney imagineers studied guest behavior to see how long they would hold a piece of trash before they dropped it on the ground. The answer: 26 paces. So they place the trash cans between 23 to 25 paces apart. They are visible when you need them and invisible when you don't. This seems like a small detail, but when part of your brand promise is cleanliness, you've got to deliver that experience.

If colleges and universities believe their product is the classes they offer, then all they will focus on are schedules, rooms, and faculty. Actually, every interaction a student has is either part of, or prelude to, the learning experience. What do students need to do to attend classes? What is the bookstore experience like? Are maps plentiful and accurate? Are student services located close together or centralized? Is the brand promise evident in each of these areas? Often, these experiences lead students to believe they are dealing with many different organizations rather than one. A single culture focused on a single brand promise will create a seamless student experience.

Delivery Systems

Creating the seamless customer experience requires a two-phased approach. The first is to ensure that the primary service delivery methods are aligned. All businesses deliver service in three ways: people, place, and process. At any given moment, one of those delivery methods will be the most important to the customer. For example, when you have a problem you want to talk to a person who is empowered to solve that problem. When you want to check out of your hotel, you probably don't want to talk to a person but would rather interact with a process. Services need to be integrated so that customers have choices.

Let's look at each delivery system. People are the most overlooked, but the most effective, delivery system. Disney tells its cast members during orientation that the average guest will interact with 70 cast members in a day. That could mean 70 magic moments or 70 tragic moments. Each and every cast member must be prepared to deliver the brand experience. For example, of all the cast members in the parks, custodial hosts and hostesses get the most questions from guests because they are visible. If they were trained just to sweep the streets, they would not be able to deliver that service. Instead, they are trained to deliver happiness.

An example of that once occurred on Main Street after the 3:00 PM parade. To clean the streets in a timely way, an army of custodial hosts armed with industrial-strength vacuum cleaners walks down Main Street to clean up the garbage. One day, as they were preparing to perform their duty, a guest tapped one of the custodial hosts on the shoulder and asked where he could find a cup of ice for his soda. Unable to leave his vacuum cleaner unattended, the host pointed to a vending cart at the end of Main Street. As the guest walked away, the custodial host took the radio off his hip and called to the cast member at the cart, describing the guest and what he wanted. When the guest approached the cart, the cast member had already prepared his cup of ice, walked up to him, and said, "Here's your ice!" The guest was amazed, and the cast member felt like a hero. But the true hero was the custodial host who took an extra three seconds out of his day to create happiness for that guest. He knew that creating happiness was his primary responsibility and cleaning Main Street was secondary.

Places can be just as friendly as people. As a delivery system, the physical environment provides much-needed service, such as seating, signage, facilities, phones, and information. Place as a delivery system can range from the aesthetic, as when hotels stamp their logo into the ash cans, to the functional, such as automatic doors for people with disabilities. It can mean having enough comfortable chairs in a waiting area or keeping the coffee service clean and well stocked. It can mean providing a bulletin board outside classrooms so that students don't need to tape fliers to the walls.

In designing Walt Disney World, the imagineers recognized that guests and cast members do not want to waste their valuable time looking for services. Both on-stage (guest area) and backstage (cast member area) services like bathrooms, telephones, ATM machines, kiosks, and printed information are placed in a centralized location. In higher education, the centralization of services is also a growing trend. The one-stop service center is again a featured trend among the 2001 IBM best practices partners. These institutions recognize that access to information for students should be provided in a variety of ways and in a centralized location. A student should be able to register for classes, remove a hold by paying a late parking ticket, and pay tuition all in one place. This saves time and minimizes frustration. To provide this type of service, an institution might have to redesign its processes and cross-train its staff to support a more student-centered model of delivering services centrally.

Process is perhaps the most important delivery system because it supports the other two. Processes connect the employee with the customer and one part of the organization with another. When they are most effective, processes are seamless and invisible. Most people appreciate having their hotel bill slipped under their door the day they check out so they don't have to stop at the desk on the way to the airport. Online shoppers appreciate a one-click checkout process that transacts the purchase and ships the items to their door the next day. Students appreciate being able to access all their records in one place. In the Internet age, customers have come to expect speedy, seamless processes. The important thing to remember about process as a delivery system is that it's not enough by itself. Anyone who has been stuck in a phone tree and screamed "I just want to talk to a person!" understands this. There must also be a person and a place where people can turn for service when the process isn't enough or when it fails.

Service Dimensions

Most businesses have a rudimentary understanding of people, place, and process. At the very least, they have all three. If they are slightly better they have friendly people, clean places, and efficient processes. But to win at the service game even these are not enough to inspire customer loyalty. People want to be surprised and delighted. They want memorable experiences. This requires providing service that is multidimensional. The service matrix in Figure 2.1 depicts how the delivery systems must be aligned with the service dimensions of high touch (interactive), high show (good presentation), and high tech (fast, efficient). This planning tool aids an organization in creating and maintaining a seamless experience that anticipates and exceeds its customers' expectations.

	People	Place	Process
High Touch	★		
High Show		★	
High Tech			★

Figure 2.1 Service Matrix

Each square of the service matrix represents an opportunity to leverage the service environment and communicate the brand throughout the customer experience. For example, a high-touch place represents the opportunity to make your physical environment interactive. This could be a touch screen kiosk in the student center that allows students to get information or access their records. Trade shows are the ultimate high-touch environment, where potential customers can experience products firsthand. To make the brand experience memorable, organizations need to create opportunities for their customers to be active participants.

Another opportunity for extraordinary service is in having high-show people. This service dimension stems from the attitude that your employees are part of your show. This is different from high-touch people, who are employees trained to interact with customers and be courteous. Again, Walt Disney pioneered the idea that people are part of the show when he put his cast members in themed "costumes." As Pine and Gilmore have pointed out, employees are actors on a stage. They are playing a role and need to learn the script. Southwest Airlines encourages its flight attendants to use humor in making announcements and even to engage the travelers in songs. At Johnny Rockets restaurants, the cooks and waiters break out in 1950s-era song and dance routines. At a more mundane level, high-show people are employees who understand they represent the brand in every interaction they have with a customer. At a college or university, students expect knowledgeable staff who understand the education experience. The employee behavior needs to align with the brand experience they are delivering. That is the power of the service matrix. If each square is accounted for and delivered upon, your customers will experience customized, branded service they can't get anywhere else.

Service Mapping

The second phase of engineering the customer experience is to use the service matrix at each point in a typical service cycle. The service cycle consists of the steps involved for the customer to complete a transaction or experience. An example is the service cycle for student advising. An institution looks at each step the student must complete in order to receive advising and register for classes. In the first step, the student and faculty member access the student's degree and transcript information. Using the service matrix, the institution can evaluate how this is done (process), where it is done (place), and who interacts with the student or faculty member (people). The next step is communication between the student and faculty member. Again, how, where, and with whom does this communication take place? Could scheduling be done using an online calendaring system? Could the advising be done online? The institution must evaluate how best to orchestrate these steps to achieve the student's objective efficiently and exceed the student's expectations at each point of contact.

Service mapping might involve assembling a cross-functional team to look at how these various steps can be better orchestrated. Disney assembled such a team to look at the check-in process at one of its resorts. It identified five critical points of contact: valet, front desk, guest services, bell services, and housekeeping. The cast members from those departments came up with suggestions to make the process seamless and hassle-free,

and to create magic moments at each point of interaction. For the team, the result is a well-integrated system designed to be seamless, personalized, and efficient. For the guests, it is their first brand experience at Walt Disney World.

Aligning the Employee Experience

Engineering the customer experience is just half of creating the brand experience. All the planning and building won't make a difference if the brand experience has not been communicated to those responsible for delivering it. The other half of the equation is effectively communicating the brand experience to the employees throughout the organization who bring the brand to life everyday. Like creating the customer experience, aligning the employee experience is a multistep process that must be constantly maintained and refreshed. The process includes the following:

- Defining their purpose for service or "true product"
- Creating an emotional bond with the brand
- Immersing them in the customer experience
- Providing the knowledge, tools, and training they need to deliver the brand experience

The first question every employee asks about his or her job is, "Why am I here?" Most people want to feel there is a higher purpose for their work. The brand promise communicates that higher purpose, for employees as well as for customers. As Scott Bedbury, the marketing genius behind Starbucks, reminds us, "We all want to think that we're a piece of something bigger than ourselves. Companies that manifest that sensibility in their employees and consumers invoke something very powerful" (Bedbury 1997). Colleges and universities are especially qualified to carry this out because there is no higher aim than education. But how is that communicated to the clerk in the cashier's window or the gardener?

At Disney the purpose for service is communicated to all cast members, regardless of level or job, during their orientation class. Disney's service theme has remained virtually unchanged for 40 years: "We create happiness by providing the finest in entertainment for people of all ages everywhere." It is a simple statement that underscores any and all job functions. Everyone in the company is united by a single purpose so that a guest experiences the same level of service and attitude no matter whom he or she encounters.

The companion to providing a sense of purpose is providing a sense of history. To create an emotional bond with the brand and the organization, employees want to know something about the company they represent. The best tool for this is storytelling. Companies are realizing the power of story to communicate their brand and create pride among their employees. Nike University tells its new employees about the founder's commitment to quality athletic shoes. Disney University shares the story of Walt and Roy Disney and the company they founded. During an internal survey, more than 80 of the cast members at Walt Disney World said they had pride in their company. This pride not only keeps them loyal but also shows in their interactions with guests.

There is also a practical reason for sharing company history and information with employees. Customers view employees, as representatives of the company, as the source of all knowledge. No one wants to hear "That's not my job." Disney learned this lesson the hard way when it opened the Disney Stores. When Eisner toured the first store in California, he noticed that something was missing. The shelves were stocked with colorful characters; familiar Disney tunes were playing in the background. Still, it was not the Disney experience loyal guests had come to expect. As he tells it in *Work in Progress* (1998), "guests expected our cast members to know everything about Disney—not just the products in the stores but our movies, television shows, theme parks, and even the company's history." They quickly adapted the training from Disney University to the retail environment so that the brand experience would be consistent.

To deliver the brand experience, employees need to experience it themselves. This is one of the often-overlooked truths of business: employees cannot deliver an experience they have never had firsthand. Not everyone who becomes a cast member at Walt Disney World has visited the theme parks as a guest. Not everyone who works at an outdoor store has been hiking or mountain climbing. Not everyone who works at a university has sat in a college classroom. The goal of the organization should be to immerse new employees in the customer experience. New cast members at Walt Disney World are sent out into the parks and resorts on

their first day to identify what "good show" looks and feels like. At Men's Warehouse's Suits University, the "wardrobe consultants" are educated on the emotions and behaviors of men buying a suit. Through empathy and a little emotional intelligence, they can turn a dreaded chore into a satisfying buying experience. Employee orientation is more than how to fill out forms: it's enculturation. It is an immersion experience in which employees are connected with the brand experience.

Once they have connected emotionally to the brand and the customer experience, employees need the tools, knowledge, and behaviors necessary to deliver that experience. The goal of every organization should be to make its employees look like heroes to their customers. Cast members at Disney learn the service standards of the company. Like the service theme, the service standards have been the same since Disneyland opened. They are four simple words that represent the operating priorities across the company: safety, courtesy, show, and efficiency. Not only the words are important; the order is also. Safety of the guests is always first priority in any situation. If safety is not a factor, it becomes courtesy. These four words are a powerful decision-making tool for cast members on the frontline when confronted with a guest situation. During their training, cast members are told what observable behaviors go along with each of the service standards. What does courtesy look like? Making eye contact, bending down to talk to a child. They are given performance tips on how to interact with and engage guests. It should never be taken for granted that employees instinctively know how to deliver the level of service an organization expects. Employees must be empowered with the tools, knowledge, and behaviors they will need to deliver the brand experience in each and every interaction with a customer.

The Education Experience

Pine and Gilmore (1999) define "education experience" as the active participation of the individual in his or her own learning. Stan Davis and Jim Botkin (1994) see this as the trend of the future: "The industrial approach to education [made] teachers the actors and students the passive recipients. In contrast, the emerging new model [of business-led education] takes the market perspective by making the students the active players" (p. 125). What Pine and Gilmore, and Davis and Botkin are advocating is a student-centered, participatory model for education. This is already under way in many institutions. But that is only part of branding the student experience. The student experience extends beyond the classroom: it involves student services, residential life, parking, buying books, orientation, health services, the alumni experience. If institutions of higher education can undertake to expand the product and build a

Figure 2.2 Expanding the Educational Product

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brand-centered culture that touches every aspect of the student and employee experience, the education experience will be evident throughout the enterprise (see Figure 2.2). The next step is to extend the brand into other realms, such as the Web site, distance learning, and alumni relations, where opportunities for lifelong loyalty abound. If the brand promise and brand experience are defined, aligned, and delivered consistently, there is no limit to the power of the brand.

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3

University of Phoenix

Removing the Barriers to Education: Creating a Service Model for the Working Adult Student

Ayla Guvenoz

The University of Phoenix[1] is a unique institution of higher learning that provides a variety of educational programs geared exclusively to working adult learners. The university's growth since its creation 25 years ago has been dramatic. It has become the largest accredited private university in the United States, currently enrolling more than 103,000 students at 107 campuses and learning centers in 20 states, the Commonwealth of Puerto Rico, and Canada, and through its Online Campus.

Throughout its lifetime, the university's key drivers of success have been constant: (1) the ability to provide higher education that inspires and motivates adult students; (2) the ability to meet the special requirements of an adult student population; and (3) the ability to establish a business model that can withstand rapid growth and constant change in the external environment. This chapter begins with a brief introduction to the university's academic model. The second part provides a look into the university's working adult student population, including methods used for gathering data and students' overall reasons for selecting the university. The final part focuses on the university's model and methods for providing a variety of service options geared specifically to this growing student population.

Academic Model

The academic model for the University of Phoenix was developed to address several key challenges facing working adults who are pursuing higher education. Traditional universities were originally designed to support the operational and academic needs of the typical 18- to 22-year-old college and university population. This was apparent in methods for course scheduling, admissions policies, physical logistics, and, most importantly, teaching techniques and instructional methodologies.

John Sperling and his collaborators at San Jose State University and the University of California, Berkeley conducted research many years before the creation of the University of Phoenix, identifying several requirements as key for learning to take place among working adult students: (1) the organizational structure must remove

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1 The University of Phoenix is a subsidiary of Apollo Group, Inc. Other Apollo subsidiaries include the Institute for Professional Development, the College for Financial Planning Institutes Corporation, and Western International University, Inc. This chapter addresses only the results and initiatives of the University of Phoenix.

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barriers; (2) instructors must recognize and incorporate the experience of students; (3) an active, applied approach to teaching and learning must prevail; and (4) a cooperative, interdependent environment must be fostered. These requirements served as guidelines when establishing the University of Phoenix model. The following basic elements were identified as requirements:

- To make use of the affective domain as a spur to learning by building a collaborative learning environment and making use of the broad experience the adult students brought to the classroom
- To provide value to all students and their employers by focusing on outcomes and results
- To focus on serving the working adult student population, with students typically taking one course at a time
- To use "practitioners"—faculty members with advanced degrees who work in the fields in which they teach—as teachers
- To provide classes at times and in places that are convenient to working adults
- To provide flexible scheduling opportunities to students, allowing them to start classes almost any time of the month and complete them in predominantly five- or six-week time frames, providing a rigorous and intense learning experience
- Recognizing the complex lives of working adults, to make student services convenient and accessible.

These elements still provide the foundation for the university's approach to adult education. In addition, the university began its online degree program in 1989 to provide further educational opportunities. Today, the University of Phoenix Online serves more than 25,000 students worldwide, all attending solely via the Internet.

Students

Knowing its students and treating them as customers is one of the university's first service strategies. It uses in-depth registration surveys at the time of enrollment to gather critical customer data. In general, it has the following demographic information about its student population of more than 100,000 working adults:

- They are 34 years old on average.
- The gender breakdown is 55 percent female and 45 percent male.
- Thirty-nine percent are racial and ethnic minorities.
- They have an average household income of $54,000.

Additionally, the university knows that its students on average will have 45 transfer credits and will have attended approximately four other educational institutions. This demonstrates the increasing mobility of the adult learner population and the need for more seamless transferability.

The registration surveys provide the university with valuable information regarding its entering student populations, including the specific reasons its adult students selected it:

Undergraduate Students	Graduate Students
1. Reasonable completion time	1. Interaction with fellow students
2. Small class size	2. Collective experience of faculty and students
3. Convenient class time	3. Real-world faculty
4. Immediate use of skills	4. Development of teamwork skills
5. Convenient location	5. Convenient location

These data demonstrate the balance of student requirements between academic excellence and service excellence. The university knows that working adults have both a great need for additional educational opportunities and for convenience. Being able to respond in a just-in-time market presents service challenges for any organization, but additional factors are at play in an educational setting.

To meet the needs of its adult student population, the university has to focus on several key areas: (1) presenting flexible scheduling options and providing continuous enrollment opportunities; (2) providing learning opportunities anytime and anyplace; and (3) providing the right balance of high-tech versus high-touch service opportunities for students. Additionally, the university recognizes that learning occurs through a variety of methods outside the traditional collegiate environment. Through an

extensive evaluation process, the university's Prior Learning Assessment Center provides the adult student with an opportunity to gain college credit for life and work experiences.

Recognizing working adult students as working adult customers is key. Knowing who they are, what they need, and what brought them to you should serve as a foundation for all service initiatives.

Flexible Scheduling and Continuous Enrollment

Working adult students have numerous obligations and competitors for their time. Providing flexible scheduling options and continuous enrollment opportunities is one of the only ways to meet their special needs. These efforts support the busy lives of the working adult population, ensuring that, regardless of changing life schedules, they can easily find an opportunity, anytime or anyplace, to take a class in pursuit of their degree. This requires that the university maintain a highly efficient and organized scheduling system and provide a multitude of entry points for students, while ensuring that class size remains at a level that is conducive to learning. Additionally, the university must ensure that its scheduling methods allow for students to move in and out of degree programs as their schedules require, without having to wait months to reenter.

This scheduling flexibility is achieved through a variety of methods, one of which is a structured calendaring approach. The university builds advance program/course calendars that contain all necessary core courses to complete degree program requirements. These calendars are built with numerous start date and day options, providing students with flexibility and allowing admissions counselors to work with students to create a personalized education plan through to degree completion, with all start dates/days identified in the very beginning.

To provide further convenience and flexibility, the university also employs a variety of learning modalities for students and a wide selection of elective and certificate program opportunities. To maintain effectiveness and accuracy, the calendaring approach must be highly systems driven, relying heavily on technology to manage and maintain general course and degree program schedule information along with specific student calendars. Internally developed systems maintain all the business and academic rules required to create and modify student course calendars accurately. Reporting is used as an overall tool to monitor the health of the learning environment, ensuring that class size is appropriate and that course scheduling opportunities are continuously available.

Most degree programs provide multiple entry points for students, allowing them to enter the program in any one of several classes. This typically allows a student to call one day and start in a degree program within several weeks after that. The university also provides an extensive variety of elective and certificate courses that allow students to locate learning opportunities at any time to continue their academic pursuit.

This level of scheduling flexibility, which creates the ultimate in convenience from a student perspective, can create a host of internal operational problems if processes are not well thought out and systems are not designed to support them. Most traditional universities experience the surge of enrollments and related processes two to four times a year, typically centered on the fall and spring semesters and summer sessions. The university's flexible scheduling model creates these traditional enrollment points on a continuous basis. Processes and systems must be created to support a continuous enrollment process and to handle significant course schedule changes on an ongoing basis.

Adult students require a level of scheduling flexibility beyond that allowed through traditional semesters. Providing this flexibility requires new calendaring models, multiple learning modalities, and extensive systems support.

Anytime or Anyplace Learning

In addition to providing flexible scheduling, the university strives to provide working adults throughout the country with increasingly greater learning opportunities. It has worked to accomplish this by providing physical classroom facilities in convenient locations and increasing its online offerings. The university's physical growth has included expansion from 46 campuses and learning centers in 10 states in 1996 to 107 campuses and learning centers in 20 states as of August 31, 2001.

While the university was founded and maintains its headquarters in Arizona, much of this recent growth has

occurred in the East. This rapid growth and geographic expansion, while providing more extensive educational opportunities for working adults, places an increased burden on people and processes. Finding and managing to the appropriate line between centralized and frontline distributed processes is an ongoing challenge. Add into this the variety of expectations for customer-centric or Web services, and the challenge becomes even greater (e-service will be discussed more later in this chapter).

The university has thus far found this line between centralized admissions and financial aid processing and decentralized enrollment and academic counseling services. However, having to separate the administrative part of one the process from the customer counseling component creates a strong need for internal communication and systems support. Enterprise-wide Web, imaging, workflow, and systems solutions are being deployed to bridge this gap and provide all staff, centralized or decentralized, immediate access to critical student information.

Additionally, as previously mentioned, the university offers a variety of learning modalities, allowing students to take one course in the traditional classroom setting and another in the online environment. The university has continued to innovate in providing more personalized student learning experiences and is now offering students the option to attend via a mixed or blended delivery method. This new modality allows students to attend part of their course online and part in the traditional classroom, providing them with the best of both the online and classroom experiences. Regardless of the method selected, by providing these options, students can move in and out of learning modalities as their life circumstances demand.

Service Opportunities: High-Tech Versus High-Touch

The increasing number of students, along with the increasing presence of the Web, has created a new paradigm for customer service. While businesses traditionally focused on providing employee-customer-based services, the Web has created the opportunity for a variety of alternatives. While customers demand excellence in customer service, they have also always demanded convenience. The increasingly Web-based world has created new definitions of "convenience." Service opportunities available 24-7 are now not only an option, but a mandate.

Businesses and educational institutions must work to evaluate their many service points—the what, when, where, and how they interact with their customers—and determine the best way to deliver the service. This is best achieved by mapping out the business processes from the point of initial customer contact, typically the information and enrollment processes for universities, through to alumni opportunities and services. Along the way, and consistent with each milestone, are a number of service points or opportunities for customer transactions. For example, the student enrollment process is comprised of many services points, including initial student counseling; transfer credit evaluations; admissions paperwork completion, submission, and review; financial options counseling; financial aid application completion; financial aid application submission; and financial aid application review.

Building an effective service model first requires identifying all service points along the business and/or student lifecycle.

Each of these service points must be reviewed, and the most appropriate method of delivery of the service must be evaluated and identified. Some of these opportunities clearly lend themselves to a one-to-one—or high-touch—service strategy, where individual human interaction is key. Others seem to be handled most effectively through e-service strategies.

The best strategy for identifying the appropriate service levels is through customer feedback. A good service model must be customer-centric, with the customers' needs at the heart of the service. Accordingly, it was imperative that the university research and gather customer requirements before beginning service modeling efforts. This was done through a number of student and faculty focus groups held throughout the country at various university locations. During these informal meetings, corporate information technology staff and campus staff met with a selection of customers to determine a number of factors: (1) How many times on average did they have to contact the university or come in for information, services, and other things? (2) What were the primary reasons for these interactions? (3) What time of day did they typically need this information or service? (4) Did they prefer to interact with a live person in these areas? (5) Did they

have Internet access, and, if so, how frequently and from where did they access it? (6) Did they use any of the university's existing Web sites? (7) What was their feedback on the existing sites? (8) What was the most important information they accessed via the Web? (9) What other service options/data would they like available to them?

In addition to student focus groups, the university has continually employed a rigorous student satisfaction survey process. Student End of Course Surveys measure overall effectiveness, from both an educational and an institutional perspective. In addition to providing key data on faculty, curriculum, and the educational process, they evaluate services in a variety of areas, including academic counseling, financial counseling, administrative services, and class size. Data from these surveys are evaluated and distributed to campus management teams on an ongoing basis for review.

Through the internal research methods discussed above, and by monitoring external trends, the university was able to begin identifying and distinguishing between the high-touch and high-tech service opportunities that would net the greatest customer service gain.

While there are many possible approaches, the differentiation of high-touch versus high-tech service needs should be the direct result of in-depth customer research.

High-Touch Service Models

The university's customer feedback research identified many areas where students felt a high-touch level of service was required. The high-touch points were typically those involving student counseling, providing students with information that was not available in other formats or that required detailed and sometimes customized explanation. Additionally, this would include resolving a variety of student issues. In general, high-touch service needs can be placed along a continuum ranging from a general need for information at one end and in-depth problem resolution with dissatisfied customers at the other. The former can also include the needs of those customers who are still simply not comfortable with the more high-tech service options. To address the range of these high-touch needs, the university uses a multi-tiered approach involving a combination of trained admissions and financial counselors and information or call centers.

The university employs a team of admissions and financial counselors who are available to students on an ongoing basis. These counselors are typically assigned to students at the beginning of their program. Admissions counselors work with students to help establish their course/degree program schedule. Financial counselors provide students with information regarding the variety of financing options that are available. Both groups of counselors provide a level of individual counseling designed to assist students in meeting their specific educational goals in the most effective and efficient way. Furthermore, these counselors are available to students throughout their programs to assist in resolving any issues that may occur.

To address the needs at the other end of the high-touch service spectrum, the university uses an information or call center approach. These call centers are staffed with a team of generalists who are able to provide basic and specific information to students as needed. The call centers typically offer extended service hours to provide increased availability. Specially designed "super-screens" are used to provide the staff with the most up-to-date student information in the most time conscious method.

High-touch service needs can best be viewed on a continuum, identifying the most human intensive needs through to the more general informational needs. This view allows varying levels of human resources to be allocated appropriately to create the most satisfying customer-service model.

Building an E-Business

The university's customer feedback research also provided key data used to identify numerous high-tech service opportunities. In response to the identification of those needs, the university began to roll out a comprehensive student and faculty Web site (*www.phoenix.edu*) in September 2000. As of July 2001, this site was home to more than 250,000 registered users, including students, faculty, applicants, and alumni. The site has more than 50,000 unique user sessions a day, where most students view their course grades, access their schedule, enter their online classroom, or download course materials.

Before implementation of the new Web site, students and faculty could access a variety of Web-based services; however, those services were all housed in different areas

at different addresses and required unique authentication per site. The university's initial e-business strategy, therefore, was to streamline all existing services into one site. This primarily included sites providing minimal student data access and the university's online library.

The university's e-business strategy was built to service a variety of student "types": the prospective student, the applicant, the student, and the alumni. The prospective student site provides adult learners with an opportunity to learn about the university's academic model, its program, and its location offerings. While the site contains predominantly static information, addressing the high-tech needs of the customer, Web-based information requests and chat functionality also provide the high-touch counseling opportunity.

The Apply Web and Imaging Solution. Prospective students can use the university's comprehensive Apply Web site, an integrated admissions and financial aid application tool, to complete all their enrollment requirements. Application "packets" are dynamically created based upon a variety of factors. Through a brief registration process, applicants create their unique username and password (which will be carried through for use as a student). Other basic program, location, and start date information entered into the registration form creates the initial admissions application packet customized for that student.

The admissions process begins with the completion of key demographic data. Based on this data, the application packet may be modified dynamically to accommodate additional required forms, such as Test of English as a Foreign Language requests and state-specific documents. Additionally, once these data are entered, the information will be retained in back-end databases and used throughout the application process. The overall Web process is a combination of data entry and program and university policy review and acceptance. Upon completion of the admissions portion of the application, applicants are prompted to identify their desired method for financing. Financial aid students are then routed through the financial aid application process.

The financial aid application prompts the student through each step of the process, including online financial aid counseling. The site begins with completion of the Free Application for Federal Student Aid on the U.S. Department of Education's Web site, continues through the completion of the university's specific financial aid application, and concludes with completion of information necessary for the master promissory note. When possible, the site uses information previously entered for the student's admissions application so students don't have to rekey information.

Admissions and financial counselors have access to student applications on the Apply Web and are able to provide real-time, mirrored assistance to students as needed. Not only does this provide a high-touch component, but it also serves to greatly improve data accuracy.

Upon final completion of the application, the student prints, signs, and mails those forms that still require a "wet" signature. A combination of paper and electronic forms are gathered at the campus level, creating the final version of the admissions file for processing. In 2000, the university also began implementing an imaging and automated workflow solution to expedite internal file processing, improve the accuracy of captured data, and reduce the overall costs of admissions processing. Imaging of the files is done centrally, and once a file is imaged it is immediately available to all authorized users. During its pilot stages, the imaging solution was found to reduce the overall admissions processing time significantly.

Creating a comprehensive and integrated enrollment site allows applicants to work through a one-stop process, significantly reducing the time it takes them to complete the various application processes and dramatically decreasing the possibility of errors.

The Student Web. The university's Student Web was originally developed in an attempt to centralize the various disconnected Web-based services in existence at the time. This new Web foundation gave the university the opportunity to embark on an exciting new venture, distributing curriculum modules solely via the Web. While the university had a well-established online degree program and a leading-edge electronic library, module delivery via the Web was one of the university's first ventures into the service aspect of e-business.

Each university course is accompanied by a corresponding curriculum module, one for students and one for faculty. While these modules can range in length, they typically average 20 pages. Historically, students and faculty went to a physical campus bookstore location to pick up these modules; in some instances,

they ordered the modules through a book distributor via the Web or telephone and the modules were delivered through the mail. With the increasing use of the Web, and in an effort to improve customer service, the university decided to allow students online access to their modules free of charge, with a download option and an online viewing mechanism.

The initial Web strategy was built around profiling and personalization. Based upon a user's log-in, the system first categorized the user as a student or faculty member. The profiling continued based on the student's campus location and program selection, providing customized links accordingly. Additional course schedule information was housed on the site. Students could use the Web to access their course schedules, check room locations, download curriculum modules, and access the other services offered through the university, such as the online library.

A campuswide communication campaign was launched during the initial rollout of the Web. Campus meetings and local focus groups were planned, promotional materials were developed, and classroom visits were conducted. During the ensuing months, the sites were expanded to accommodate all high-tech service opportunities more fully. Once again, the service points were evaluated and the high-tech service opportunities were scoped, prioritized, and turned into information technology projects. Based on this methodology, the university identified several areas of focus: (1) class transition services, (2) administrative services, and (3) academic services.

- *Class transition services.* The university's model allows students to complete courses in a five- or six-week time frame. Consequently, students need to work through various types of registration issues on an ongoing basis. This includes reviewing their upcoming course start and end date, location, and instructor; downloading curriculum modules; ordering and receiving books; checking account status; paying for courses; and other tasks. Receiving information about upcoming classes was identified as one of the top 10 reasons students had to call or visit their campus. It was also an area where students indicated they did not need to speak with a person when receiving this information unless there was a problem. Given the high number of calls and the low need for human intervention desired by the customer, providing these class transition services was identified as a high priority. Consequently, these services were among the first to be built and implemented on the site.

Providing one-stop shopping for students' most utilized services, the University's Student Web contains all the necessary information and functionality required to allow students to prepare for and move into their upcoming course.

- *Administrative services.* Like all universities, students need access to any number of administrative services throughout their educational program. Again, most of these services are high-tech in nature, requiring human intervention only for handling problems and/or exceptions. However, if these administrative services are not readily available and tied to efficient processes, the universities can quickly lose touch with their student population and frustration and dissatisfaction can occur. Therefore, providing these administrative services was also deemed a high priority.

Through the Web site, students can perform most administrative functions, with transactional data shared from the Web to the back-end legacy systems. Students may use the Web to perform tasks such as updating address and phone information, reviewing account balance information, making payments, and printing receipts. Additionally, in 2000 the university began distributing all grade cards via the Web. This provided students with immediate access to their grade cards, while also allowing them ongoing historical access.

As a side note, the university also moved the processing of all grades to the Web. Faculty enter their grades via the Web, and the data are transmitted directly into legacy systems, thus significantly decreasing the time it takes for students to receive their grades.

Providing administrative services via the Web, along with legacy system integration, allows students to perform foundational tasks at their convenience, and eliminates the need for increased staffing to accommodate basic data entry functions.

- *Academic services.* The university quickly realized that, in addition to providing a variety of service opportunities, the technology could be used to enhance the student's learning experience. The university was one of the first to provide n

comprehensive online library for students. Additionally, its online degree programs were among the first of their kind. Over the years, the online learning opportunities have rapidly expanded, providing a number of technologically enabled educational support materials and services. Some of the university's current academic e-services include the virtual writing lab, the proficiency assessment site, and the most recent project, Career.

The university introduced its virtual writing lab in September 1999. The lab started as an e-mail type of service, allowing students to e-mail their papers for evaluation by a faculty reviewer. By the end of the first month, the lab had received almost 300 submissions. Student demand grew exponentially. In 2001, the lab moved to a Web site, which students access through the university's Student Web and where they post their papers for review. A back-end system distributes the papers to the various reviewers, tracking information such as who's on vacation and who should receive English as a Second Language papers. Once the review is complete, an e-mail notification is sent to the student, upon which he or she logs back into the Student Web to review the comments. As many as 8,000 students use this dynamic service each month.

All university students have access to a Web-based Proficiency Assessment Site, which contains a Skills Enhancement Center and the Proficiency Assessment System. The Skills Enhancement Center provides students with Web-based tutorials to improve their skills in the areas of English, math, and critical thinking. Through this center, students can also practice their skills by taking sample proficiency tests. Additionally, students using the Proficiency Assessment Center can demonstrate their proficiency in any one of the above-mentioned areas, all of which are requirements for undergraduate students.

Career. In 2000, the university began outlining a method for providing students and faculty with a variety of multidimensional, electronic learning materials. This eventually became known as Career. Through Career Web pages, students gain access to a variety of learning materials associated with their courses, including a curriculum module; an e-text; custom articles from the online library; self-assessments; Web links; and multimedia presentation tools. This new approach allows the university to ensure that students are receiving the most up-to-date and leading-edge information specific to the objectives of the course. It also allows students to interact with a variety of different content types. The university began implementation of Career in 2001 and will continue its rollout until all courses use this model for learning materials.

Creating Web-based academic services provides students with enhanced opportunities for learning, bringing both currency and diverse learning methods into the educational experience.

Challenges of E-Business

While much can be said about the advantages and opportunities presented by the Web, transforming business from a paper and human form to a computer-mediated one can be a daunting task. While various issues arise, the biggest problems by far are related to aligning Web services with business processes and dealing with data integrity issues.

A key component of the University of Phoenix's e-business strategy is its strong tie to both the customer lifecycle and the underlying business processes. The focus is not simply on providing a variety of self-service Web-based opportunities. Rather, the goal is to integrate these technologies as strategic service tools throughout the university's business environment. Online services are often not adequately tied to business process—operating in apparent isolation of the traditional business. This can result in a disjointed and confusing experience for the customer.

E-service opportunities create a level of automation for existing processes. Accordingly, before beginning development efforts, the process must be reviewed and evaluated so as not to automate something that isn't working as it should. What makes this particularly challenging is the cross-functional nature of most student service processes. For example, the application process requires tight integration between the admissions and financial aid teams. Creating these integrated processes is, first and foremost, a business challenge and requires the complete support of all the operational parties. To accomplish this, it is critical that the goals for customer satisfaction and internal efficiency throughout the process are clear and all participants are willing to align their business processes with this end in mind.

Using the example of the application process again, clearly defined goals were established before development efforts to (1) eliminate redundant work for the students, (2) reduce data errors, (3) create a user-friendly Web-based environment, and (4) reduce the time it takes students to complete the application process. These identified goals stood as measurements, framing all aspects of process engineering and development. They also provided measurements for success upon implementation.

Successful e-Services strategies provide more than multiple, disjointed Web-based service opportunities; they allow the student to seamlessly complete entire processes via an integrated Web tool.

Data integrity was another large issue the university encountered while moving services online. Historically, staff could be placed between the student and the data in the legacy systems. The staff could then evaluate and interpret the data before sharing it with the student. The advent of e-business has removed that curtain. The Web provides students with the opportunity to take a direct look into the legacy application data. System codes and numbers that universities spent years training staff on were now in plain view for the student. Additionally, business missteps that are addressed through paper must now also be modified from a systems perspective.

The transition to an e-Service strategy will provide students with a view into the university's legacy system data. Universities must anticipate and plan for system fixes and training issues to correct data integrity issues prior to beginning e-Service initiatives.

Measuring Success

Success for e-service products is measured on several levels. First, success is measured based upon the level of business impact or integration achieved. The university realizes integration only when the e-service solution has securely taken hold of the business process and achieved internal and external impact. This impact is typically demonstrated by the same indicators that are used to monitor the health of the business side of the university, such as decreased admissions processing times, decreased financial aid processing times, increased retention, and increased graduation rates. Part of defining the initial project is establishing baseline performance metrics and identifying the projected improvements.

Additionally, success is further measured by student-campus communication indicators such as reducing campus information center calls, transfers from information centers to specialized counseling staff, information center costs, and the number of incoming service calls. Benchmarking and evaluating these numbers before and after e-service implementation provides the university with the data to measure its return on investment.

Most importantly, measuring success also occurs through the student feedback mechanisms discussed earlier, the Student End of Course Surveys. In addition to these surveys, which are now being Web enabled, the university provides more focused feedback opportunities directly through the Student Web.

University of Phoenix

The University of Phoenix is a private, for-profit higher education institution whose mission is to provide high-quality education to working adult students. The university identifies educational needs and provides—through innovative methods such as distance education technologies—educational access regardless of students' geographical location. The university provides general education and professional programs that prepare students to articulate and advance their personal and professional goals.

The university's educational philosophy and operational structure embody participative, collaborative, and applied problem-solving strategies that are facilitated by a faculty member whose advanced academic preparation and professional experience help integrate academic theory with current practical application. The university assesses both the effectiveness of its academic offerings and the academic achievement of its students and uses the results of these assessments to improve academic and institutional quality.

The University of Phoenix has been providing higher education programs to working adults for more than 25 years. It currently offers educational programs and services at more than 100 campuses and learning centers in 19 states, Puerto Rico and Vancouver, British Columbia. Degree enrollment was nearly 100,000 as of May 31, 2001.

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The success of e-Service is measured through benchmarking and evaluating both institutional effectiveness and customer service indicators.

Conclusion

The university's ability to remain competitive is dependant upon its ability to provide a variety of timely and flexible educational opportunities along with exceptional and convenient service to its increasing customer base. Mixed modalities and new educational programs allow the university to provide a customized and personalized approach to meeting the education needs of the working adult student. Additionally, the university recognizes that by addressing its customers' high-tech service needs through its various e-service opportunities, it can continue to focus resources more effectively on providing the high-touch, value-added customer service that has become its hallmark.

Part 2

Charting the Course

4

University of North Carolina at Greensboro

Creating a Student-Centered Culture

Jim Black

Overview

Best practices can and do occur at institutions where students are dissatisfied. Tactical and strategic initiatives that do not transform the culture will inevitably produce minimal or short-term results. Streamlined processes, customized portals, one-stop and no-stop centers, powerful information systems, and even automated functions, at best, provide a time-limited "wow" factor. The level of student expectations is escalating at an unprecedented rate. Services once considered to be on the cutting-edge have become expected. Thus, sustaining a competitive advantage is nearly impossible through technology and services alone. We must continuously look for ways to reinvent ourselves.

Reinventing implies constant change—a characteristic not often associated with higher education institutions. The academy tends to change with glacial speed. So we are challenged with transforming one of the most collegial and calcified organizations in the world into a nimble, market-driven enterprise. To be successful in a culture of immediacy, we must have speed itself as a strategic direction (Schnaars 1998).

An organization's ability to innovate fast enough to gain and maintain competitive advantage is driven by a focus on the capacity to produce the "wow" factor. Its people are the capacity. Indeed, the acquisition and cultivation of talent has been central to the creation of a student-centered culture at the University of North Carolina at Greensboro. The story of our journey is the focus of this chapter.

Compelling Case for Change

In 1994, Patricia A. Sullivan became the chancellor of the University of North Carolina at Greensboro. Under her leadership, the institution created a vision statement of "becoming a leading student-centered university." At the time, however, the meaning of "student-centered" was not clear. The concept prompted discourse such as "Who's in charge?" "Are students customers?" "Is the customer always right?" "Are our academic programs actually products?" "Is student satisfaction the measure of the quality of instruction?" and "How should the promotion and tenure process be realigned to reflect the new vision?" Eventually, the dialogue permeated daily operations. Many began to internalize the vision and ask questions about how to create a student-centered environment through their office processes, practices, and policies. Increasingly, institutional decisions were made within the context of the vision statement.

This kind of culture shift does not happen without strong, almost evangelical leadership at many levels

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throughout the organization. Fervent leadership is not enough, however. A compelling sense of urgency must exist (Belasco 1990). For UNCG, multiple sources of urgency existed. The most compelling was a pattern of revenue projections that far exceeded enrollment reality. Gaps between expected and actual revenue led to a strain on the institution's infrastructure, severely hampering academic initiatives and ultimately keeping the university from attaining its vision.

Under-realized enrollments were due in large part to the lack of data-driven projections. However, UNCG had its share of legitimate enrollment-related problems, such as a blurred institutional image, broad-based student dissatisfaction, and below-average retention and graduation rates. Not long after the university launched its student-centered vision, the Office of Undergraduate Admissions participated in the Admitted Student Questionnaire sponsored by The College Board. A part of this assessment instrument looks at factors prospective freshmen consider important in their college decision-making process and compares competitors. Regarding "personal attention," a desired attribute of a student-centered institution, UNCG ranked consistently lower than its competitors. Though we aspired to be student-centered, the perception of those who, arguably, did not know the "real" university was that we were not.

Perception does not always reflect reality, although in this case it did. The University of North Carolina's Sophomore and Graduating Senior Surveys validated concerns raised in the Admitted Student Questionnaire. On 11 of 22 student satisfaction items, UNCG rated lower than its top five competitors. Students did not feel they were attending a student-centered university. For the institution's vision to become reality, much work had to be done on enhancing the image as well as the student experience itself.

Finally, UNCG'S freshman-to-sophomore retention rates reached a decade low (71 percent) and four-year graduation rates fell to an abysmal 20 percent. Five- and six-year graduation rates were modestly better at 41 and 51 percent, respectively. While attrition factors varied greatly, student dissatisfaction was among the reasons identified. Also, anecdotal evidence showed that students, particularly local students, shared their dissatisfaction with others outside the campus. Of course, this had implications for shaping image and adversely affecting student recruitment.

In the fall of 1996, a new associate provost for enrollment services organized all this information into a presentation that was delivered approximately 25 times to different campus groups. The presenation had two purposes: (1) to establish an understanding of the complex dynamics that were influencing enrollments and (2) to create a sense of urgency. Simultaneously, the university's first-ever comprehensive enrollment management plan was being developed. The plan was designed to address issues that had plagued the university for years. It included marketing messages to shape the institution's image as "a leading student-centered university," a plan to improve student retention, and a service plan. Later iterations of the plan also included a plan for staff learning and effective knowledge management. When the enrollment management plan was released, there was enough understanding of the issues that the academic leadership of UNCG invested $1 million in its implementation. That level of investment would never have happened if we had not built a compelling case for change.

Project Summary

For the purpose of this chapter, the focus will be on the project within Enrollment Services. Narrowing the focus is not intended to imply that the change effort was limited to Enrollment Services. In fact, creating a student-centered culture requires effort from the entire campus. My premise is that most of this chapter's readers cannot have a direct, campuswide impact on student culture but might be able to influence the campus culture using an "infectious" change model. That is, they can initiate a culture change locally (in a department or division) and then, through example and persuasion, encourage others to reevaluate their existing paradigm.

Satisfaction. We began the project in Enrollment Services with the assumption that there is a strong correlation between student satisfaction and staff satisfaction. Students know when staff are dissatisfied. Therefore, to improve student satisfaction, we must first improve staff satisfaction. Besides the obvious—more money—staff essentially need three things from their work experience:

- *They need to be understood.* In *The 7 Habits of Highly Effective People*, Stephen Covey (1989) asserts that effective leaders "seek first to understand and then to be understood" (p. 235).

Before the arrival at the university of the associate provost for enrollment services, staff were asked to complete a satisfaction and climate survey. Using survey responses to set the context, the associate provost spent the first three weeks on the job meeting with individuals and small groups to listen to their issues. Many commented it was the first time anyone had asked their opinion. The information gained through those interviews helped shaped the direction for Enrollment Services. More importantly, it set the tone for the organization— one of open, honest communication and caring for individuals. Since those initial meetings, regular listening sessions have been scheduled with each of the six departments in Enrollment Services. There is no formal agenda for these meetings. Staff ask questions and share concerns. Staff follow the protocol in their department regarding issues that are not appropriate for a group setting and, if the matter is not addressed satisfactorily, then seek the assistance of the associate provost.

- *They need to be successful.* Feeling a sense of accomplishment in one's work is a powerful motivator. Too often, we place people in positions without proper training and support. Enrollment Services initially responded to this need by creating a full-time trainer position. The trainer offers 12 to 15 sessions per month on various SCT Banner applications. We quickly learned that this alone was insufficient. We needed to begin with clearly defined performance levels for each job function. Once established, skill assessment instruments could be administered to determine where gaps exist. Identified gaps would serve as the basis for developing customized learning experiences. Admittedly, this is a work in progress.
- *They need to feel valued.* When possible, merit increases and promotions demonstrate in a tangible way the value of a person to an organization. Though we constantly look for opportunities to promote from within and adjust salaries to reward meritorious service, such opportunities are too infrequent to shape culture. Hence, we look for simple yet effective ways of conveying worth and appreciation, such as the following:
  - Just-in-time words of praise
  - Thank you notes
  - Birthday cards
  - Platters of cookies with a note of appreciation
  - Breakfast served by the directors and associate provost
  - Staff luncheons
  - Recognition in monthly meetings
  - Recognition in weekly listserv updates
  - Enrollment Services shirts
  - Campuswide enrollment celebrations
  - Enrollment Services celebrations
  - Words of praise from the provost
  - A brochure distributed to the campus community highlighting enrollment accomplishments and staff contributions
  - Acknowledgement of work at national conferences, in teleconferences, in publications, and in magazine interviews
  - Investments in professional development
  - A relationship with a staff mentor
  - Opportunities to share knowledge with Enrollment Services colleagues
  - University service awards

Shared vision. The project at UNCG flowed from a shared vision. Approximately 125 people spent three months crafting the following Enrollment Services Vision Statement:

> The Enrollment Services staff at the University of North Carolina at Greensboro will continue to work creatively and diligently to attain optimal enrollments, support the academic mission of the university, and enhance student success. In so doing, we will value and respect others regardless of circumstances. We aspire to become a service leader on campus, as well as a national model for quality enrollment services.

Recently, we revised this vision statement to reflect our achievements as a service leader and national model for enrollment services. The latest version also reflects a more intentional focus on gaining market prominence.

Regardless of the version, the vision statement is used as a tool for guiding decisions and establishing priorities. No operation has infinite resources. So having a bellwether to ensure an organization stays the course is

critical to long-term success. Ongoing comparisons of the current reality with the vision create a healthy tension (Senge 1990). This tension, if used wisely, serves as a catalyst for continuous improvement. It fosters innovation, thinking "outside the box," and risk taking. Without some level of internal tension, organizations are prone to maintain the status quo or be hurled to and fro by external pressures.

From the vision statement flow goals and supporting, tactical action items. Broad goals as well as department-specific goals exist under each of the key concepts within the vision statement:

- Attaining optimal enrollments
- Supporting the academic mission
- Enhancing student success
- Becoming a service leader and national model
- Gaining market prominence (latest version only)

Key performance indicators. Aligned with the vision statement and related goals are key performance indicators (KPIs). The following eight broad KPIs are used to measure movement toward the vision and, thus, the success of the organization: student enrollments, student quality, student diversity, retention rates, graduation rates, student satisfaction, staff satisfaction and professional growth, and institutional image. Within each of the primary KPIs are more specific, secondary KPIs. For example, a secondary KPI under student satisfaction is to "improve satisfaction ratings on items in the Sophomore and Graduating Senior surveys by 2% between administrations." Baseline data were created on each measurement and are updated annually to track progress. Results are shared broadly with the staff and key stakeholders. By sharing information, we build an understanding of big picture issues and confidence in the work of Enrollment Services. Furthermore, identified performance gaps are targeted for improvement in the upcoming year.

Define the culture. Once the vision and key performance indicators have been established, it is important to define the culture. People need clearly defined boundaries—guidelines for acceptable behavior as well as rewarded behavior. Staff members in Enrollment Services have a set of written expectations for the division as well as for their respective offices. Expectations for Enrollment Services include the following:

- Contribute to the vision of UNCG and of Enrollment Services.
- Exemplify the service standards adopted by Enrollment Services and your department.
- Consider every encounter with a student as an institutional "moment of truth."
- Protect the right of the student to have absolute confidentiality.
- Represent the university in a professional manner at all times.
- Continuously evaluate existing policies and practices, searching for ways to improve operations and add value to the student's experience.
- Execute everything we do at the highest level of quality possible.
- Understand your role as a member of the UNCG team.
- Pursue professional development as well as knowledge of enrollment issues and the university.
- Take pride in your work and in this university.

Within the first two weeks of employment, each new staff member has a one-on-one meeting with the associate provost. During this meeting, the associate provost reviews the Enrollment Services Vision Statement, expectations, and service standards. Service standards are essentially common sense and include items such as removing barriers, simplifying processes, adding convenience, reducing runaround, and providing accurate and timely information.

At that initial meeting, staff members also learn that they will be held accountable to the service standards and expectations. It is imperative that people know there is a system of checks and balances—that their actions and inactions matter. To make the system of accountability effective, two things must occur: (1) consistent enforcement and (2) visible leaders who personify desired behavior.

Accountability must be balanced with reward. Those who consistently reflect the expectations and service standards in their actions should be rewarded accordingly. Unfortunately, in most organizations the reward for good work is more work. At UNCG, we attempt to avoid this pitfall whenever possible. Instead, we look for ways to honor these student-centered leaders. They are the first to be considered for merit increases or reclassifications, the first to be promoted,

and often the first to be recognized publicly for their contributions.

By setting the boundaries clearly on the front-end, holding staff accountable, and rewarding desired behavior, over time we have created a service-oriented culture. In addition, we have adopted a long-term strategy of changing staff culture through hiring people who have a passion for serving students—in other words, a servant's heart. We have found that it is relatively simple to teach skills. It is much more difficult to train a heart.

Learning organization. At the core of the Enrollment Services project is the learning organization. As stated in the overview, human capital is our most precious resource. We look to enhance human capital at three levels: individual learning, team learning, and campus learning.

Individual learning occurs through customized learning plans designed to help each person grow in areas that are important to him or her and to the organization. Much like an undergraduate curriculum, the Enrollment Services model has a body of core knowledge (general education requirements) that everyone in the division is expected to learn, functional knowledge (major requirements) that are specific to the individual's job function, and electives. Figure 4.1 shows a sample learning plan for an assistant director of admissions.

Team learning, on the other hand, focuses on sharing experiences and knowledge. The concept of knowledge management represents one form of team learning. "Knowledge management is the process of transforming information and intellectual assets into enduring value. It connects people with the knowledge that they need to take action, when they need it" (Kidwell, Vander Linde, and Johnson 2000). The just-in-time nature of knowledge management distinguishes it from other forms of team learning. For example, information portals and intranets are rapidly replacing institutional fact books and office procedure manuals as preferred modes of information dissemination. They are much easier to maintain and navigate. Drill down capability is typically far greater than their paper counterparts. The best portals provide users with only the information relevant to their question and may even prompt users when vital information is available. The portal, for instance, might prompt an enrollment manager when an academic department goes 5 percent above or below applications for admission compared to the same time the previous year.

Core Knowledge	Functional Knowledge	Electives
Enrollment Services Vision Statement	Listening Skills	Historical Campus Tour
Enrollment Services Core Values	The Art of Story Telling	Dealing with Difficult People
Enrollment Services Service Standards	Overcoming Objections	Change Management
Banner Navigation	Communication of Marketing Messages	Leadership Development
Enrollment Management Concepts	Project Management	Web Development
Student Services Principles	Budget Management	Groopz Software
Connections (Customer Service)	Territory Management	Team-Building Activity
UNCG Student Experience	Relationship Management	UNCG Conference
Intranet 101	Banner Admissions and Recruitment	Enrollment Services Workshops
Enrollment Policies and Processes	E-coms Software	Site Visit Team
Student Handoff Protocol	Web Mail	Independent Research Project

Figure 4.1 Sample Learning Plan for an Assistant Director of Admissions

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At UNCG, an intranet originally developed in the University Registrar's Office is in the process of being expanded to all student service areas. The intranet supplies answers to frequently asked questions; all university forms; office procedures; the established protocol for reducing student runaround; a lexicon of student services terms; an alphabetized listing of student services with the direct extension of the contact person; photo organizational charts with brief job descriptions; and a master calendar that includes events, deadlines, and similar dates. The goal is standardization of response.

Enrollment Services departments and generalists in our one-stop center (Information Station) use another team learning tool, Groopz software, which our virtual student center will soon use. Groopz is a Web chat tool that allows us to catalog answers to questions and URLs and push those to students. Information delivered by multiple offices and even telecommuting staff using Groopz is just in time and consistent.

Following are other examples of team learning practiced by Enrollment Services:

- Monthly Enrollment Services team meetings
- Monthly Enrollment Services workshops
- Weekly listserv updates (Enrollment Services, campus, state, and national information)
- Luncheons with staff mentors
- Teleconference broadcasts
- The decisions lab (a computer lab with special software that provides an opportunity for anonymous input from participants)
- Team Quest (a ropes course owned by the university)

Campus learning can and does take the form of the team learning activities described above. For instance, we have a special edition of the listserv for student services subscribers and make campuswide invitations to most teleconferences.

Probably the most successful campus learning experience we have engaged in is the UNCG Student Experience. Participants from across the campus become a student for a day. They join a class of 15 to 20 colleagues in applying for admission, taking a campus tour, applying for financial aid, meeting with an advisor, registering for classes, paying for classes, applying for graduation, and eating in the cafeteria. Each participant selects a student scenario, so that his or her experience is unique among the group. We intentionally create some worst-case scenarios to give people a view of what can happen when the system is dysfunctional. The experience culminates in a group debriefing in which participants comment on the processes they experienced. To date, we have received valuable feedback for process improvement. More importantly, we have exposed a large number of faculty and staff to enrollment-related processes and, thus, enhanced understanding. Ideally, participants also have increased empathy for the student experience, having walked in their shoes.

Enrollment Services also sponsored the first-ever cross-divisional retreat in summer 2000. Sixty individuals were invited to participate in a two-day retreat. They spent the first day at Team Quest (a ropes course), developing trust and teamwork. On the second day, they participated in a facilitated case study discussion designed to improve cross-divisional communication and coordination.

Among the tangible by-products of this inaugural retreat was the formation of a campuswide student advocates group. This group is charged with developing content for the student services intranet, providing advice regarding the development of the virtual student center, reducing student runaround, and solving system problems (patterns of reoccurring student problems). They also have formalized the network of existing student services contacts in each office.

The notion of sponsoring university-wide groups is not new to Enrollment Services. We have initiated or worked with numerous groups, such as the following:

- *Banner Project Team:* Users who set IT priorities and coordinate implementation and maintenance of the Banner student information system
- *Student Academic Support Group:* The owners of enrollment-related processes who coordinate every interaction with students, from the first point of contact as prospects until enrollment
- *First-Year Experience Committee:* A committee jointly sponsored by Student Affairs and designed to enhance the experience from initial enrollment through the end of the first year
- *Retention Committee:* Faculty and staff who are committed to student success and devise retention-related strategies

- *Advising Council:* Those who are responsible for advising in each academic unit and who coordinate the advising experience and explore ways of dramatically improving the institution's advising model
- *Faculty Enrollment Management Committee:* Faculty Senate representatives who provide advice on the Enrollment Management Plan and recommend admissions policies
- *Academic Policies Committee:* Faculty Senate representatives who establish and monitor academic policies

Beyond these ongoing groups, we sponsor a number of cross-functional, ad hoc teams, such as the Transfer Team, the Cancellation Team, the Student Marketing Group, and the Strategic Enrollment Planning Group. In each case, we are attempting to pull together process owners with decision-making authority—people who can penetrate existing silos and get things done.

Other outreach activities include plans to partner with other divisions to sponsor an internal UNCG conference that will feature our own staff as presenters, with the possible exception of a nationally known keynote speaker. And beginning fall 2001, we hosted a lecture series bringing to campus national experts in fields like student services, technology, student retention, and enrollment management. The primary intent of this effort is to expose the campus community to new ways of thinking about the work that we do, thus creating an opportunity for further dialogue and collaboration.

Through ongoing dialogue, we are making steady progress toward designing seamless processes that are intuitive to students. In the final analysis, students do not care how we are organized. Processes that cross organizational boundaries should be bundled together or flow seamlessly so that the student does not have decode our structure.

Service-oriented systems. It is not uncommon to find an institution with service-oriented people but dissatisfied students. W. Edwards Deming, the father of America's total quality management movement, claimed that 85 percent of all customer issues were system problems, not people problems. This ratio is fairly representative of trends at UNCG. Consequently, it would be impossible for us to create a student-centered culture without addressing system issues.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	●
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	◐
▪ Process oriented	●
Service Support Center (telephone/e-mail)	◉
Customer Relationship Management (CRM)	○
Document Management	◐
Back Office Process Redesign	●
Year Recognized	1999

● *In production*
○ *Implementing*
◐ *Planning*
◉ *Designing*
⊛ *Not intended*

Policies, processes, and practices. System issues consist of policies, processes, and practices. At UNCG, we have instituted an annual review of policies for clarity, consistency of administration, and value added to the student experience. Every department on campus is required to engage in this review.

Processes redesign is largely driven by assessment results. For example, a satisfaction survey revealed that students were concerned about their inability to reach a financial aid professional. When they were able to reach a staff member, the quality of assistance varied greatly. They often reported telling their story to a frontline receptionist only to repeat the specifics when they were passed on to a financial aid counselor.

These revelations led to four system-oriented improvements. First, the Financial Aid Office provided online and voice response options for students to check their status—redirecting about half of the traffic to a

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Vision Statement	The Office of Student Academic Services recognizes the correlation between student satisfaction and retention; each encounter with a student is critical to his or her decision to persist. Hence, we seek to provide accurate and timely academic services, by working directly with students and performing many support-processing functions. Our vision for student services is of "being a leading student-centered" office providing quality service in all of our areas of responsibility.
Core Values	1. We recognize and respect the diversity among our students, faculty, and staff. 2. We are committed to being inviting and responsive to both our internal and external communities. 3. We serve students with empathy, dignity, and respect and foster mutual respect between students and staff. 4. We promote academic success by assisting students in achieving their goals. 5. We communicate what people can expect from our office and strive to exceed those expectations.
Strategic Direction 3	UNCG will build a strong sense of community as a student-centered university.
Departmental Goals	1. Improve Student Satisfaction We intend to benchmark student satisfaction with our current services by using survey cards, response forms, follow-up phone calls, and focus groups. Thereafter, we will continue to gather students' input to seek continuous improvement. 2. Reduce Response Time We will seek ways to improve our response time in our various functions and services. 3. Improve Working Conditions In order to create a more pleasant and efficient environment for both students and staff we seek the following enhancements in our office surroundings: a) Provide Ethernet connections for all workstations. b) Within budgetary constraints, provide office furnishings for our lobby area. c) Partition an area currently shared by two advisors to make private offices for each. 4. Create Service Learning Plans Strengthening professional development, we will develop a service learning plan for each staff member and evaluate progress toward enhancing service skills. Training areas will include customer service skills, team building, problem solving, and computer training. 5. Seek Continuous Improvement We intend to continuously improve processes and procedures on a daily basis and reflect upon these improvements at regularly scheduled intervals. 6. Improve the Academic Appeals Process We seek to improve the effectiveness and efficiency of processing student appeals for academic suspension and retroactive grade appeals. 7. Perform a Value-Added Analysis for Each Process and Service
Goal 1: Tactical Activities Related to Advisee Satisfaction	**Effectiveness Measures**

Figure 4.2 Sample Service Plan*

**This figure is modified from a plan submitted by Robert Ross, director of Student Academic Services at the University of North Carolina at Greensboro (1997).*

Develop an advising model for distance learners.	Persistence rate of distance learners Feedback from surveys
Facilitate early advising for transfer and adult admits before orientation sessions.	Number of students who are advised prior to orientation Student advising surveys to measure satisfaction with the advising experience
Develop a faculty advisor training module to aid academic departments in training advisors.	Feedback from department heads, faculty advisors Student advising surveys

Figure 4.2 Sample Service Plan

self-service solution. Second, the university purchased a Bell South communications system that authenticated callers and placed them in a queue for the first available representative. The system also has fax on demand, e-mail queues, and Web chat features. When a caller is authenticated, a staff member receives the student's financial aid record automatically on his or her desktop. No longer do staff have to explain Family Education Rights and Privacy Act issues or complete a records search. This single change resulted in a 35 percent increase in efficiency. Third, we eliminated all receptionist positions and upgraded these positions to counselor status. Individuals went through intense training to enhance their knowledge base and prepare them to help any student through the complete financial aid process. All counselors participate in a front-line rotation, sharing what they learn with the other members of the counseling team. Fourth, we received funding to hire two additional counselors, thus expanding our capacity to serve students in a one-to-one mode.

Finally, we review practices on a regular basis. We expect staff to be proficient at their core business functions. They are evaluated on their ability to meet and exceed student expectations on a consistent basis. The term "student delight" describes the kind of experience we want to create (Black 1995). Practices should be aimed at providing consistent, accurate, and timely information with a 100 percent degree of certainty. We want students to feel that we are reliable. However, delight goes beyond reliability. It is about creating a "wow" experience.

An illustration of a "wow" experience is evident in UNCG's visits to two-year community colleges. We send a team of three people to our feeder schools. One is an admissions representative who can admit the student on the spot if all credentials are available. The second is a transfer articulation specialist who can generate a preliminary statement of credits. The third is a degree audit specialist who can do an informal degree audit as well as provide some initial advising. Students depart having answers to the three most important questions in the transfer process.

Service plan. Though it is mentioned last in this section of the chapter, one of the first stages of this or any project planning is having a service plan. This is just as important as having an enrollment management plan, a marketing plan, or a retention plan. Without such a plan, it is difficult to move forward in a thoughtful, intentional way.

Much like other plans, a service plan should consist of a vision statement, core values, strategic directions, goals flowing from the strategic directions, tactical activities designed to achieve stated goals, and effectiveness or outcomes measures. Even though the formula is similar, the purpose is quite different. The service plan is intended to provide a road map for systematic improvements. It should focus primarily on changing attitudes, managing "moments of truth" (interactions with students and other key constituents), identifying the infrastructure required to support quality student services, and building service-oriented systems. See Figure 4.2 for a sample service plan.

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Lessons Learned

The journey toward creating a student-centered culture is laden with obstacles, both the seen and the unforeseen. Lessons learned can best be explained using Bolman and Deal's (1991) frames for analyzing organizations: structural frame, human resource frame, political frame, and symbolic frame.

In the structural frame, brutal policies, complex processes, and a lack of infrastructure were the principal barriers to change. The worst of the policies was an academic progress policy that suspended students after their first semester if they did not make a minimum grade point average. This policy did not give freshmen an opportunity to adjust to the rigors of college. We were able to convince the Faculty Senate to replace the "no strikes" policy with probation undergirded by required academic support structures.

Complex, dysfunctional processes drained our energy and diverted us from taking the quantum leaps necessary to shift the culture. Eventually, we decided to attack no more than two complex problems per year. Though we did receive significant funding to support our change initiative, we found that our ideas often outpaced our infrastructure. Good ideas with inadequate infrastructure usually resulted in poor implementation or staff who became overtaxed. We learned to slow down and wait for the infrastructure to materialize before proceeding with implementation.

The human resource frame was loaded with leadership issues. In particular, we learned that you cannot mandate what matters. "Organizational values are embraced, not forced" (Black 1999). We had to create an environment in which aligning with the message yielded personal and professional satisfaction. Furthermore, people only believe the message if they believe the messenger. For this reason, much time was invested in building relationships and mutual trust.

Higher education institutions are political organizations. So, as one might expect, the change effort was highly political. There were—and still are—turf issues. Identifying the power brokers in each situation and looking for opportunities to engage them in the change effort was fundamental to our success. We learned to anticipate resistance to change and find ways to overcome resistance through education, engagement, negotiation, and, in some cases, coercion.

The symbolic frame contained a single lesson: we should not misunderstand resistance to change. Initial resistance may not mean an outright rejection of the concepts. In fact, we found that some healthy level of disagreement typically led to a better solution. So, ironically, we looked for occasions to encourage conflict.

Critical Success Factors

The KPIs referenced previously are our critical success factors. In the most recent five-year period, the university achieved several history-making enrollments: the highest number of applicants, the largest freshman class, the largest transfer class, the highest overall enrollment, the highest quality entering class in more than a decade, the most diverse student body of any historically white institution in the UNC system, the highest first-year retention in a decade, and significant increases in four- and five-year graduation rates. Results

The University of North Carolina at Greensboro

Founded in 1891, the University of North Carolina at Greensboro is recognized as one of the top public universities in North Carolina, offering more than 100 undergraduate, 62 master's, and 15 doctoral programs. Known for its high quality of teaching, ground-breaking research, and caring faculty, UNCG has one of only three Phi Beta Kappa chapters in the UNC system. More than 10,000 undergraduates and close to 3,000 graduate students choose from among programs in UNCG'S College of Arts and Sciences and six professional schools. A diverse yet close-knit community, UNCG attracts students from 43 states and 80 countries.

UNCG's 76 buildings are set on 200 acres of rolling lawns shaded by oak and flowering trees. The campus is located one mile from the center of Greensboro, a city of just over 200,000. Students benefit from the many opportunities the city offers, such as internships, cultural events, and entertainment choices. They also enjoy an ideal climate and easy driving distances to North Carolina's mountains and beaches, Washington, D.C., and Atlanta, Georgia.

UNCG takes great pride in being a leading student-centered university linking the Piedmont Triad to the world through learning, discovery, and service.

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from Sophomore and Graduating Senior Surveys varied somewhat between administrations, but in every instance, satisfaction is higher than it was in the 1996 administration. Based on increasingly positive staff surveys and a decrease in staff turnover, we believe that staff satisfaction is noticeably improved as well. Institutional image as measured by the Admitted Student Questionnaire is vastly better. UNCG ranked higher than competitors in all but two important variables in the college decision-making process. Moreover, our win rate (the percentage of students who enroll at UNCG when admitted to UNCG and to a competitor institution) has improved significantly with all of our top five competitors as well as with the flagship campus at Chapel Hill.

We have been successful, yet we fully realize there is still much room for improvement. The journey is not yet complete.

Conclusion

Creating a student-centered culture goes beyond surface changes to strategies, structures, processes, and technology. It is ultimately about transforming the underlying assumptions and values governing behavior and designing systems within the organization (Cummings and Worley 2001). The culture is at the root of all substantive and lasting change. A student-centered philosophy must be engrained in the culture to provide enduring value to the organization.

The University of North Carolina at Greensboro is well on its way to becoming a leading student-centered university. We have a passion for this vision. Nothing short of a shared vision and a survival imperative could compel an organization to engage in such widespread change. If you elect to create a student-centered culture, be sure you have compelling reason to change and the wherewithal to see it through.

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5

The University of British Columbia

On the Leading Edge: Implementation Begins

Audrey Lindsay and Leo Fernig

Overview

The Student Services unit at The University of British Columbia places a strong emphasis on customer-focused and student-centric service. This service commitment was strengthened and expanded beyond Student Services when our new president brought a change in leadership and engaged the community in a serious rethinking of UBC's mission, goals, values, and objectives. This has resulted in the following two mission documents:

- *TREK 2000—A Vision for the 21st Century*. This document (see *www.vision.ubc.ca*) defines the mission, principles, goals, and strategies for the university. The five principles outlined in Trek 2000 are people, learning, research, community, and internationalization. Among many other items, this document outlines our mandate for recruitment and admission:

  > Enhance our student recruitment efforts provincially, nationally and internationally, with the objective of attracting the best students to UBC. … We must be innovative and imaginative in recruitment if we are to compete successfully with other universities for the best students. … We should also study ways of increasing early access by gifted high-school students.

- *The Academic Plan*. This plan (see *www.vpacademic.ubc.ca/apac/*) is an implementation plan to meet the TREK 2000 goals. One of the many themes within this document also supports the recruiting process: "Recruiting an intellectually active and capable student body is essential. … In recruiting we must ensure that our expectations are clear, and that we attract undergraduate students who will thrive at a learning-centred research university."

This chapter examines recent activities at UBC and, in particular, within Student Services and the systems group. Student Services has undertaken a reexamination of services for students, with a focus on newly admitted students. This involves two major components of the Student Information Management Plan: an immediate project involving the total redesign of our publications and processes to support 100 percent Web registration, and a longer-term business process reengineering (BPR) project that began with a 10-week intensive redesign of our support mechanisms for new students. Both projects began in fall 2000. Many of the recommendations of the BPR project, as outlined in the report titled "On the

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Leo Fernig *is a project manager in student systems at UBC, where he has been the chief architect in the development of the e-business Java systems. He has also worked in library and general administrative systems at the University of Toronto. He has presented at numerous conferences, including CUMREC and SUN JA-SIG. He is also on the board of JA-SIG.*

Edge of the Future" (see *students.ubc.ca/about/include/bpr_report.pdf*), have serious systems implications. These will undoubtedly guide the ongoing evolution of the Web-based services created by the systems group. The synergies between the proposals of the BPR project, the publication redesign, and the ongoing development of systems are most obvious in the following three areas:

- The acceptance of the Web as the only repository of critical institutional information and the key for delivery of services to students.
- The emergence of the portal as the gateway for service delivery.
- The emergence of the concept of a portfolio as a vehicle for an ongoing relationship between clients and the university.

For the past three years, the systems group has been rebuilding the student information systems on SUN Microsystem's Java platform. (Java is a multiplatform programming language and collection of packages developed by SUN Microsystems through a community process. See *java.sun.com*.) UBC was an early adopter of the Java platform, and after some initial setbacks we are now developing stable state-of-the-art Java systems. A commitment to exploiting the opportunities opened up by new technologies has always been one of the guiding principles of the group. UBC has always tried to stay on the leading edge of the technology innovation curve, partly because of the excitement and enthusiasm that this generates within the group, but mainly because new technologies offer numerous ways of improving customer service to our key constituents: students, faculty, staff, and prospective students.

With the mission and vision set for the entire university, UBC is migrating from a highly decentralized environment toward a more integrated and cooperative one. Our goal is to eliminate the current need for students to understand the organizational structure of the university and to support students seamlessly in all aspects of their university life.

Compelling Case for Change

The focus for the BPR process and new systems development is to create a seamless transition from high school to UBC for prospective and new students. UBC is subject to the same global pressures affecting all higher education institutions. While all students should receive excellent service, the experience of prospective and new students is particularly important because outstanding students have many choices. Difficulty getting service, information, or advice from UBC might well result in an excellent student deciding to go elsewhere. To achieve the Trek 2000 goal of becoming the leading research university in Canada, we need to do the following:

- Attract some of the best students from Canada and around the world.
- Compete globally with other leading institutions by providing levels of service that "wow" our clients.
- Make effective use of technology, leaving behind the paper-based world and releasing available time for employees to engage in value-added roles.
- Keep up with the pace of change by providing innovative services and constantly revisiting our processes to ensure that we address our customers' changing needs.

There are also strong internal pressures to provide better and more integrated services. Student Services has taken many incremental steps to improve service to new and continuing students over the last several years. We have opened an Information and Advising Center to provide one-stop service counters, appointed a first-year coordinator and provided more support for Imagine, our orientation program for new students. UBC offers a comprehensive Web-based, self-service system for students to support admission, registration, student records, and other online services. These electronic services have dramatically reduced the need for students to come to our service counters for in-person service.

However, in spite of a strong commitment to excellent service, our staff are frustrated because they are unable to attain the desired level of excellence. Inadequate resources, increasing numbers of students, and complex procedures all contribute to the frustration, making the goal of "first time right" with no "ping-pong effect" more difficult to attain. Students today expect seamless, integrated, efficient services. They do not expect to stand in line at multiple service counters to complete routine transactions. They do expect to be able to get information and advice when they need it.

To meet the expectations of today's students, provide the levels of service and support that our staff aspire to, and meet or exceed the levels of service provided at other leading universities, we have to radically change how we

provide students with information, advice, and service. We are starting this process of radical change by focusing on the needs of new students, the group who are least equipped to deal with bureaucracy and are often most urgently in need of help.

Currently, although a one-stop information center is available, new students often interact separately with the admissions, awards, registration, advising, and housing areas in Student Services. International students obtain some services from two separate international student offices. Each office has its own brochures, Web information, and processes. Students purchase services from the parking office, the bookstore, and the food services department, and then pay their tuition through the financial service area. To get a student card, students must visit the library. They buy compulsory health insurance from the student Alma Mater Society and have to follow a separate procedure if they wish to opt out. If they want to pay their tuition by debit card, they might have to visit the payment office in person and stand in line. Students who need academic advising, or other information, might be uncertain about where to get it. In some cases, this means making multiple trips to the campus.

Student Services is working with other departments to transform the present collection of uncoordinated demands on new students into a seamless, simple, one-stop (or zero-stop, where possible) process for every new student. We must create a solution that integrates all student-requested and institution-required processes for prospective and admitted undergraduate students to make a successful transition to UBC. We must fulfill all student inquiries and requests for services in an easy-to-use, efficient, effective, and timely manner that reflects student needs, meets their requirements, and exceeds their expectations. The experience of coming to UBC as a first-time student must be transformed!

This reengineering project provides us with a detailed plan for allocating the required resources and making the necessary changes to radically improve our services and support for prospective and new students.

Project Summary

The BPR project that began in fall 2000 stressed client care as the most important underlying principle of service delivery. The principle of client care underlies the six new core processes proposed by the BPR: enticement, information sharing, relationship building, assessment, handoff, and transition. These processes replace the more traditional processes of recruitment, admission, and registration. To quote directly from "On the Edge of the Future":

> **Enticement** includes recruitment and marketing. The new processes will commence when students begin to "stream" into their academic track, typically in Grade 10. Marketing will be focused on developing relationships with these students, with their high school counselors, with parents and with others who have influence over the student's decision to attend university. Exceptional students will be targeted, and offered unconditional admission.
>
> **Information Sharing** supplements the current inquiry and response processes. The new design requires the provision of tools for UBC staff to ensure consistent, client-focused and personalized service. UBC will apply industry standards to client care, making the institution seem smaller and friendlier.
>
> **Relationship Building** is a major focus of the new design. UBC will provide value-added services for clients that encourage them to build an early and strong relationship with UBC. These services will help students make decisions about post-secondary options. We will encourage future students to provide information, to be collected in an electronic portfolio, which will be used both for admissions assessment and institutional planning.
>
> **Assessment** replaces the current admissions evaluation process, focusing instead on the admission of pre-qualified students to ensure that those students accept UBC's offer.
>
> **Hand Off** is a brand new process, the goal of which is to find the best match between the student and his or her abilities. Instead of rejecting applicants, they will be guided to other post-secondary choices.
>
> **Transition** involves the improvement, integration and streamlining of existing process with a client-centered view. Bureaucracy is reduced so students can focus on personal transitions and academic programs, rather than on meeting University requirements.

We believe these new processes are easy to use, efficient, and effective. They reflect student rather than institutional needs and preclude a student's need to know the organization. The new solution will meet student requirements and will exceed their expectations. This solution will assist UBC to move forward in the 21st century, on the edge of the future, and to meet its goal to become Canada's best university.

Publication redesign and 100 percent Web registration. Working in parallel with the BPR team was the publication redesign and 100 percent Web registration project. The goals of this project were more immediate and tangible, namely, to streamline our publications and Web pages, eliminate the printing of highly volatile schedules, eliminate the old telephone registration process, and provide a support mechanism for students without Web access.

This project involved eliminating a 250-page registration guide and course schedule booklet and replacing it with a 25-page guide that is an orientation to the university and links to the Web for more detailed information. The printed schedule was replaced with a searchable online course facility with real-time access to the latest course information and availability. Our telephone registration system was turned off on May 31, 2001, and all registrations are now handled over the Web. A backup paper and personal support process was designed for those students without Web access.

There were some obvious synergies between the two projects. First, the same people were often involved in both projects (either directly or indirectly). Consequently, the enthusiasm and energy generated in one project would flow into the other. Second, in both projects, Internet technologies were seen not merely as tools but as the enabling agents of profound transformations. The enabling technologies include the following:

- The delivery of services through portals
- The creation of tools for self-help and self-assessment
- Information management
- A customer relationship management system
- The creation of a portfolio

Visions from the BPR process. The following list summarizes the key enabling technologies identified through the BPR process:

- *The portal.* The portal is the framework through which the new core processes are delivered to the client. It provides the customization, personalization, and security required for ongoing relationship building. It is the client's personalized "window" through which they interact with the institution.
- *Self-assessment.* The BPR project distinguished between "unofficial self-evaluation" and "official evaluation" of applicants. In both cases, the portfolio is the repository for information that is used for the assessment. The assessments are conducted through the portal. According to "On the Edge of the Future": "The portal provides an iterative process for self-evaluation of entrance requirements to programs proposed by the client. This process becomes increasingly refined as data (official and unofficial) is received from the client." Obviously, for this to work, institutional assessment rules must be exposed so that they are as accessible to clients as they are to trained admissions staff.
- *Information sharing and customer management.* There is one crucial assumption behind all of the BPR proposals, one that has a wide-reaching systems implication—all information that clients receive must be consistent and reliable. This means that all communications with the client must be recorded and be shareable between support staff and across the various departments that interact with the client. The issue is stressed in the information sharing process outlined by the BPR:

  > At present, inquiries come in via the web page, by e-mail, telephone, fax, mail, or face to face at any of the front counter services. Clients request general information about the University or specific information about programs. The information provided is not always consistent (one student said *I seem to get different info depending on who I'm talking to*), students don't know who to ask for what, and some staff are responding with an unhelpful "I don't know" (without an accompanying offer to find out).

- *The portfolio.* The portfolio is a collection of official academic records and personal information such as resumes and samples of work. It is a multimedia repository that can consist of documents, e-mail, video clips, and any other items. A vehicle for

creating and maintaining a lifelong relationship, it can be created during the enticement process. Grade 10 students can begin entering information about themselves. During the relationship-building process, more and more information about the student is collected. By the time the assessment phase is reached, all the information that is required for an assessment exists in the portfolio. In the words of the BPR:

> The portfolio is an electronic docket, in which data is collected over time. Official documents are transferred to the portfolio by EDI [electronic data interchange] from participating institutions, or faxed into the repository from the original source. ...Students can manage their own portfolio and can determine what items (e.g., transcripts) are missing. [Students are in control of their admission process in that they have the ability and responsibility to ensure the completeness of their file.]

Current activity. Currently, a transition team is translating the vision of the BPR process into a number of concrete projects. Irrespective of whether the BPR projects are launched as independent initiatives, some of them dovetail very nicely with the current direction of systems development. This is especially true of the following:

- The creation of a portfolio
- The delivery of student services through a portal
- Self assessment
- Information sharing

Student services are currently delivered through a site called the Student Service Centre. The site tries, above all, to embody the concept of one-stop shopping. Students can change their address, register for courses, order a transcript, and perform other functions. In short, students can conduct all their business in one place on the Web instead of visiting the front counter, as they had in the past. However, this site also embodies (albeit, in a simple, prototypical way) two other conceptual models of service delivery over the Internet, namely, the portfolio and the portal.

- *The portfolio.* When a student logs onto the Student Service Centre, a series of folders becomes available (see Figure 5.1). These contain the following institutional files that belong to the student: (1) grades, (2) timetable, (3) academic program, and (4) tuition fees. Since November 2000, these institutional folders have been expanded to allow a certain amount of self-reporting. High school students can self-report grades from their grade 12 November report cards (extremely promising applicants will be given an unconditional offer of admission based on these grades). Soon, there will also be a process to allow applicants to enter free-form comments on an ongoing basis during the admission cycle. The same framework is being developed to allow both applicants and current students to indicate a change of academic program. Registration and other key activities are conducted at this site (see *regi2.adm.ubc.ca/ssc.html*).
- *Self-assessment and planning.* Although the BPR project concentrated on self-assessment in the

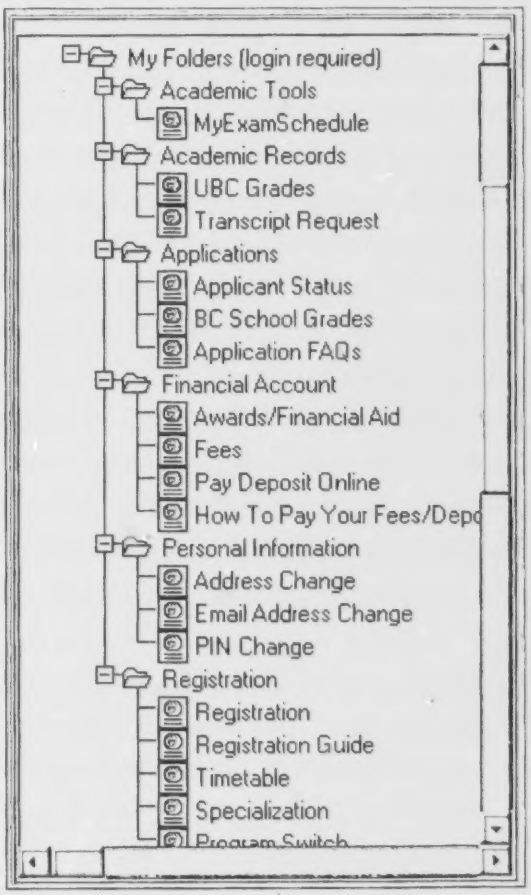

Figure 5.1 A Student's Institutional Folder

context of new applicants, self-assessment is actually an ongoing process that engages applicants and students throughout their relationship with UBC. A student should ask the following questions, for example:

- "Am I admissible to this program?" A prospect, an applicant, or a current student who is switching programs may ask this question.
- "Do I have the prerequisites for this course?" Unfortunately, this question may be as complex as admissions requirements.
- "Do I meet the degree requirements for this program?" This is an ongoing question for all students that a degree audit program should answer accurately.

Self-assessment is only meaningful in the context of the wider choices an individual is trying to make; these may be choices about academic programs, career, and other areas. The important point is that clients be given clear and consistent information about various academic requirements (admissions, prerequisites, degree requirements) and the substantive content of courses and programs (as well as what career paths these may lead to). One of the goals of the systems group is to provide prospects, applicants, and students with the tools and information required to engage in self-assessment.

- The creation of a facility to allow high school applicants to self-report grades in November is just the first phase of a project to allow high school students to do a self-evaluation. When this project is complete, they will be able to discover which programs they are admissible to (in the background, an evaluation engine will take their self-entered grades and apply the current undergraduate admissions requirements).
- A highly graphical degree audit package, Degree Navigator, is integrated into the Student Service Centre. This allows students to examine their current degree requirements. More importantly, it also allows them to engage in "what if" scenarios. For instance, if they took course "a," "b," and "c," how would that affect their ability to complete their degree requirements? Alternatively, if they decided to change degrees, what courses would they need to take?
- The new version of the online curriculum and course schedule that was released in May 2001 (see *regi2.adm.ubc.ca/courses*) contains a very simple (and, hopefully, powerful) academic planning tool, namely, the ability to build a work list of courses that may potentially be of interest.

Viewed in this manner, the Student Service Centre is a prototype student academic portfolio. It contains the key elements of an academic portfolio: the student's institutional academic record, the beginnings of a student's self-reported academic record, and academic planning tools.

- *The Portal.* The other initiative the BPR team stressed is the delivery of services through a portal. The current reality at UBC is quite complex (as is probably the case at most large universities). Several sites represent different aspects of a conceptual space that, arguably, belongs to a single university portal.
  - The official UBC site, *www.ubc.ca*, allows customers to self-identify according to well-established categories: prospective students, current students, alumni, faculty, and staff. The site then pulls together the main resources for these categories. However, all of this is achieved through static HTML pages, and there is none of the interactive personalization that is typically associated with a portal.
  - The Information Technology Services department is building a true portal at *my.ubc.ca*. (see Figure 5.2). This site's features constitute a full-fledged portal (such as channel selection, personalization, customization, and community). The portal is the first production release of the Java Special Interest Group uPortal, which is an open source portal being developed by a consortium of universities (see *www.ja-sig.org/*).[1] However, it is very much a work in progress and does not yet offer a very

1 A portal offers a single point of access to Web services and common authentication. Several commercial packages offer portals. By adopting a commercial package, an institution loses control over its visual presence on the Web. For a complete list of the universities involved in the consortium, see *mis105.mis.udel.edu/ja-sig/uportal/*.

broad range of services beyond those offered by Student Services (see Figure 5.1).

- The site that offers students the greatest breadth of services is the Student Service Centre at *regi2.adm.ubc.ca* (or accessed through the portal depicted in Figure 5.2). Here, students can apply to UBC, register for courses, pay their registration deposit, and conduct a host of other typical student transactions. However, the site does not yet offer customization and personalization.

All three sites offer different aspects of the elements a university portal should contain. Such a portal does not need to be a single, monolithic site that attempts to be all things to all people. Given the enormous diversity of the activities that take place at a university, it is more realistic to see the portal as a federation of sites. For the federation to work, there must be a common understanding of customer identity and profiles. As students move from site to site, their identity and profile flows with them.

- *Information sharing.* The portfolio, the portal, self-assessment, and almost all other activities proposed in the BPR presuppose clear and consistent information. This consistency can be achieved by ensuring that all information on a given topic is published from one source. A number of initiatives illustrate this:
  - One source of information. In early 2001, Enrollment Services decided that the Web would be the only source of information for course content and course schedules. In 2000, there were three separate sources: (1) static HTML pages, (2) printed publications, and (3) a course schedule inquiry facility off the student information system database. One dynamic and interactive course query facility at *regi2.adm.ubc.ca/courses* has replaced all three sources. This is the only source of official course information at UBC. Printed materials sent to applicants and students have been totally revised and reduced from a 250-page booklet to a 25-page registration guide and orientation booklet that simply refers to this and other URLs.
  - Degree information. Above all, students need clear and consistent information about degree requirements. One of the final goals of the degree audit package is that all information about degree requirements must be derived from one source. The various processes in which degree requirement information is used include the publication of the university calendar (paper and Web), the session evaluation process (an interim degree audit evaluation that determines whether students can be promoted to the next year level within their chosen program), and academic advising.

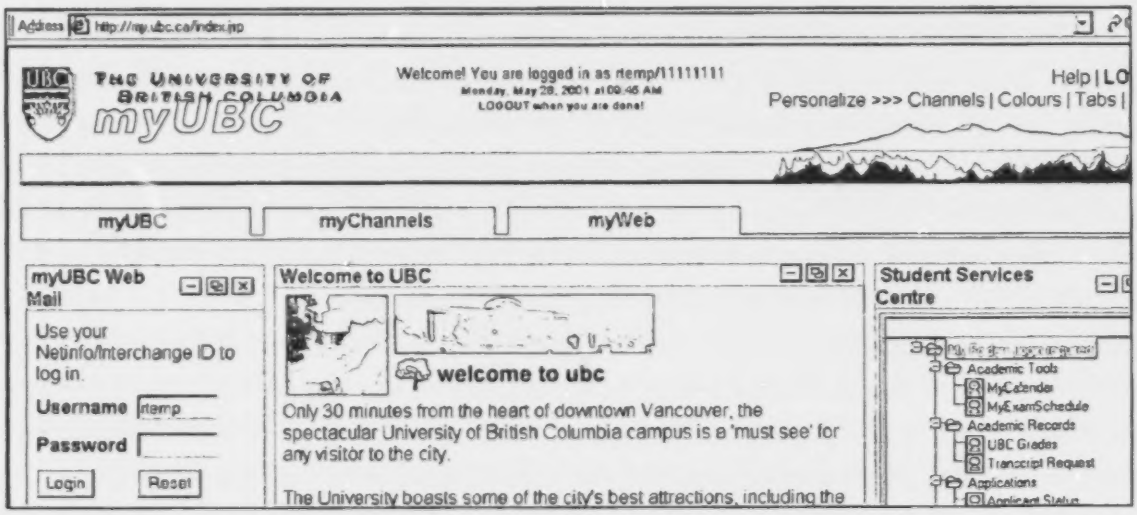

Figure 5.2 The University of British Columbia Web Portal: myUBC

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- Prerequisites and co-requisites. Prerequisite rules (which can sometimes be quite complex) are now stored in one rules database that drives the printed text in the curriculum guide, the text in all Web references to prerequisites, and the prerequisite checking module of the registration system.

These are just some examples of the drive toward unified and consistent information. The same approach now must be applied to a whole range of services, including student finances, awards, careers, and housing.

Current Reality. The BPR project offers a clear vision of where we want to go. Most of the goals of the BPR project overlap very closely with the current direction of systems development because we are constantly expanding the Web services we offer students. Course registration is conducted exclusively over the Web. The course catalog and schedule exist only on the Web. (This was a major leap for a university of more than 37,000 students with no mandatory computer access requirement.) The other Web-based services include undergraduate admission applications, grade inquiries, fee inquiries, registration deposit payments (with real-time credit card authorization), address changes, transcript requests, personalized exam schedules, personal calendars, and awards inquiry.

These services are written entirely in Java. Although in one sense this provides us with an ideal base for ongoing development, it is important to remember that nothing remains stable for very long in the world of the Internet. We were surprised to find that in 2001, 52 percent of our first-year students have high-speed Internet connections at home (either cable or ADSL). We suspect that this has had an unanticipated performance impact on our servers in that they now have to process more kilobytes per second. Only a year before that, we were wondering whether it was reasonable to assume that most students had dial-up access (either 28K or 56K)! As we have introduced more personalized and more financial services, we have had to offer everything over Secure Socket Layer. This has serious performance implications because encrypting and decrypting messages over the network requires more processing power.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	●
Web Portal	●
▪ Personalized	●
▪ Customized	○
▪ Community oriented	●
▪ Process oriented	○
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	○
Document Management	◘
Back Office Process Redesign	●
Year Recognized	1998

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

The platform we are running on is continually evolving. The Java J2EE spec is evolving.[2] There will always be new releases of the key Java extension packages (servlets, JSP, and JDBC). Java itself is always changing (from 1.02 to 1.1 to 1.2 to 1.3). So as we move forward to meet the vision of the BPR, we also have to renew our infrastructure continually to keep abreast of a wide range of technological changes in order to take advantage of new features, keep abreast of performance and security requirements, and retain ongoing support from our vendors.

2 Java™ 2 Platform, Enterprise Edition (J2EE™) technology provides a component-based approach to the design, development, assembly, and deployment of enterprise applications.

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Lessons Learned

In this period of rapid change and ongoing plans for redevelopment, we are constantly learning many things. Some have been positive, and we will continue to use them and grow; others have been *real* learning experiences for us, and we hope that you might avoid these by learning from our experiences. Following are words of advice:

- Incremental changes are sometimes insufficient. The BPR process allowed us to step outside the day-to-day issues and look at entire processes, to get the big picture, and to radically change our processes. Of course, this creates an even longer list of new initiatives and projects for the development queue!
- Student input into the design and user interface is extremely important—services are now built directly for the student, not the staff. Hiring students to work part-time and full-time on the projects is mandatory to ensure user acceptance of the new systems.
- Delivering the same services to faculty and students means that the code is reuseable and that it also assists advisors and help desk staff. They view the same screens that students use and can, therefore, respond better to students' questions.
- Continue to develop and offer services over the Web. Students have totally embraced the Web. Our telephone registration system was turned off May 31, 2001, and we have moved to 100 percent Web registration. Our faculty and staff have access to all our student administrative systems over the Web.
- We highly recommend adding hardware, conducting an independent performance evaluation, and performing capacity planning before switching to 100 percent Web registration. Even if you think you have done due diligence, you may still be caught off guard!

Following are underestimations we made:

- Redesigning publications to deliver entirely over the Web is a very large task that requires more time and more consultation than we had envisioned. If we were to do this over again, we would redesign the processes and make them available in parallel for an annual cycle to work out the kinks before eliminating the old publications and process. Tight budgets and the fact that you need to produce two versions for one year may still make this financially impractical.
- Students are much more open to change than faculty and staff. Don't underestimate the effort required to communicate with faculty and staff, the time required for hand-holding, and the unwillingness of faculty and staff to give up old processes and embrace new approaches. Although we eliminated the printed publication for students, at the last minute, we needed to print in-house copies for faculty advisors because many were not ready to embrace the switch from paper to the Web.
- Web systems need to be designed to be even more flexible than any other system. Internet years are very short, and the user interface constantly requires changes! A collection of self-services that was considered the "latest" the previous year

The University of British Columbia

The University of British Columbia is one of Canada's largest universities and is British Columbia's oldest. Incorporated by the provincial government in 1908; UBC first admitted students in 1915 and moved to its present 993,000-acre Point Grey location in 1925. It is a global center of research and learning, with state-of-the-art facilities and a range of professional programs in 12 faculties and eight schools. Winter session enrollment of 36,000 is comprised of 29,000 undergraduate and 7,000 graduate students. UBC also has a summer session enrollment of more than 17,000 students.

UBC is an international institution with approved undergraduate education abroad programs at 99 universities on every continent. It also has linkage agreements with 221 universities in 57 countries around the world.

Its mission is to provide its students, faculty, and staff with the best possible resources and conditions for learning and research; create a working environment dedicated to excellence, equity, and mutual respect; cooperate with government, business, industry, other educational institutions, and the general community to create new knowledge, prepare its students for fulfilling careers, and improve the quality of life through leading-edge research that serves the people of British Columbia, Canada, and the world.

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needed to be repackaged in a personalized portfolio to meet the norm.

- Performance problems can (and will) occur when you least expect them. To prepare for a 14 percent increase in the volume of transactions, we doubled the capacity of our system (CPU and memory) over the previous year, had an independent performance evaluation, and stress tested all new modules. However, we still hit a volume threshold on the first day of registration that slowed every transaction down to a crawl. It is extremely difficult to simulate the load that thousands of eager students will place on your server. This requires intensive performance tuning and careful management of the peak volumes placed on the system.

And following are general observations:

- We have been amazed at how quickly our students have embraced the Web. Registration over the Web increased from 60 percent in 1999 to 87 percent in 2000 to 93 percent in January 2001. Moving to 100 percent Web registration, which we did in June 2001, is a very significant step for a large institution with no formal computer ownership mandate for its students.
- Access to the Web for university students is almost ubiquitous. In planning for the switch to 100 percent Web registration, we created a paper-based support system for students who do not have access to register over the Web. Students could request and complete a form that the registrar's staff would enter on the student's assigned day. During the entire registration period, only two students requested this new service! Many called for normal advice and assistance, but no more than in previous years.

Critical Success Factors

From a systems perspective, the critical success factors are usability and performance. From a wider perspective, the most important thing is that our Web presence be coordinated with a number of other processes. Paper publications must refer to information on the Web where applicable. Units within Student Services, such as admissions, awards, and registration, must be fully involved in supporting the Web presence.

The most obvious measure of success is customer satisfaction. Students come to university to learn, not to spend their time pursuing a multitude of administrative tasks like registration and fee payment. All of these matters should be simple, accessible, and relatively fast. In the end, the whole purpose of the BPR project and the ongoing systems development is to improve the experience of students in administrative areas. How can we measure customer satisfaction? In practice, we use a number of different techniques:

- *Surveys.* We conduct surveys to judge customer satisfaction.
- *Anecdotal evidence from the telephone help line area.* Students who encounter problems can telephone the help line area in the registrar's office. This provides us with anecdotal evidence regarding the usability of our Web interfaces.
- *E-mail.* Students with problems can send messages to a number of standard e-mail addresses.
- *Data mining.* Typically, students send e-mail messages and phone the hot line area when they have problems. These sources tend to produce a negative and one-sided view of customer satisfaction. By examining systems records, we can get a clearer picture of response time (and, ultimately, the average time a customer spends on a transaction); typical paths taken in completing a transaction, and the total numbers of customer transactions. Although a customer who does not phone with a complaint is not necessarily a satisfied customer, we can assume that he or she did not encounter any insurmountable problems.

These various inputs are used in the ongoing design and refinement of our Internet systems.

Conclusion

Supporting and exceeding customer expectations is an ongoing process. Customer expectations quickly rise to accept the current level of service as the norm and await the next "wow." It is important to step back periodically to look internally at your processes, survey your customers, study your competitors and best-practice institutions, and look at the commercial world to assess your service levels in order to reach the next level of customer satisfaction.

Purdue University Calumet

Integrated Service Delivery: In Person and on the Web

Beth Pellicciotti, Anne Agosto-Severa, Mary Ann Bishel, and Paul McGuinness

Overview

At Purdue University Calumet, we believe organizational change starts with changing. Mental models reflect how we see the world, our jobs, or any process (Schein 1985). It is possible to be immersed in a system of complex processes, which should be adapted to meet external pressures, and not see the need for change. We cling to the mental model of the way the world should be (Senge 1990). Because of our mental models, we can miss the obvious.

Many in higher education see the enrollment process as a socialization process (Godwin and Markham 1996). This mental model works on the assumption that students should learn how to work within a bureaucracy and that they need to learn how to move from office to office to be admitted, apply for financial aid, find their advisor, register, and take responsibility for payment.

Others in higher education envision the enrollment process from the perspective of their individual areas, such as admissions, financial aid, registration, and bursar functions. The work of these offices is highly specialized (Rhoades 1995). Those who adhere to this mental model may believe that this specialization prohibits integration of any of these functions.

Another mental model envisions the enrollment process as a series of discrete steps. In the world of paper, files are completed in order and handed off to the next step (office) in the process. Thompson (1967) refers to this as "long-linked technology," a concept made obsolete by integrated databases. In the past, the paper-driven world created social systems or silos. Long after the introduction of information technology, these social systems remain, resisting integration.

We write this chapter as a team because we share the same mental model of the enrollment process, one that brings those outside the institution inside. We also want to recognize 45 other enrollment services staff

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Anne Agosto-Severa, *registrar at Purdue University Calumet, received a bachelor's from Ball State University and a master's from Purdue University Calumet. She has served on numerous committees at both the state and local level and is currently a member of the Records and Registration Committee for the American Association of Collegiate Registrars and Admissions Officers.*

Mary Ann Bishel, *director of financial aid and student accounts at Purdue University Calumet, is responsible for the management of the student financial aid, scholarship programs, and student accounts. She has completed postgraduate coursework in educational administration and holds a master's from The Ohio State University and a bachelor's from The University of Akron.*

Paul McGuinness, *director of admissions and recruitment at Purdue University Calumet, oversees activities related to recruitment, admissions, transfer course evaluation, and enrollment correspondence. He also is has been named co-chair of the Enrollment Management Committee. He holds a master's from Governors State University and a bachelor's from Saint Joseph's College.*

members who share our new mental model. We publicly thank them for learning more and doing more so that we could translate our mental model into the Enrollment Services Center (ESC).

Compelling Case for Change

In higher education, recruiting, admitting, granting financial aid, advising, registering, and collecting payments from students comprise the enrollment process. This is a critical process in higher education, one that moves the student closer to realizing his or her learning goals. Easing this process for students, making the steps clear, and helping forge positive connections with faculty and staff are noble goals. *The enrollment process brings those outside an institution inside.*

The enrollment process not only provides students access to higher education, it also translates prospective student demand for coursework, skill enhancement, and credentials into funding sources for colleges and universities. Most higher education institutions depend on this enrollment process for tuition income and, in the case of public institutions, state funding.

From a student's point of view, the enrollment process is a means to an end. Students seek a simple transition from outside the institution to inside, from seeking a schedule of classes to sitting in the classroom (the traditional classroom model of instruction is best used for this example).

One indicator of student enrollment expectations comes from a service marketing study. Conducted at a metropolitan, public university, this study focused on student expectations of service in the admissions, registration, financial aid, and bursar offices. Consistent with customers surveyed by banking, telecommunications, repair and maintenance, and credit card industries, students named reliability of services as their most important expectation. Students ranked dependable and accurate assistance above caring, courtesy, or the neat appearance of frontline workers (Zammuto, Keaveney, and O'Connor 1996).

Negative student comments related to lost documents, transactions completed partly or not at all, and the need for repeated student follow-up to have routine matters resolved. The authors noted that

> applications processing in the admissions work unit is organized as a service assembly line. . . . No one individual is responsible for making sure that admissions processing for a given applicant is c ompleted. As a result, student applications can "fall through the cracks." (p. 59)

One indicator in the early 1990s that students were falling through the cracks at Purdue University Calumet was the percentage of students whose registrations were cancelled for nonpayment. Students were completing parts of the enrollment process, but between 10 and 12 percent had their registrations cancelled each semester. They were not officially enrolled at the start of classes. While 50 percent of these students reregistered and paid, the university received no state support for these enrollments because they were not enrolled at the end of the first week of class (the date for the official headcount). It was necessary to rethink the enrollment for both the student and the university. After we focused on streamlining this part of the enrollment process and created consistent messages to registered students who had not paid, this cancellation percentage dropped to 8 percent.

Other factors forced a rethinking of our enrollment process. Purdue University Calumet is in a region of the United States in which only 12 percent of the population over 25 years old has a college degree (Indiana Business Research Center 1990). This compares with 25 percent nationally (United States Census Bureau 2000). Seventy-five percent of our entering freshmen have no family members with a college degree. We do not adhere to the mental model that students need to learn how to traverse a bureaucracy. Our goal is to demystify and integrate the steps necessary to enroll in college. The integrated service delivery through the ESC and via the Web is intended to help students easily traverse the enrollment process. Our vision is to help those outside Purdue University Calumet have access to higher education.

Project Summary

The ESC has been in the planning and implementation stages since 1995 (for a detailed timeline, see Figure 6.1). At that time, Chancellor James Yackel charged a steering committee composed of leaders from the offices of admissions, financial aid, registration, and bursar (later changed to student accounts) to do the following:

- Implement the consolidation of enrollment services offices.
- Cross train the staff.

- Empower students with automated self-service.
- Set a timeline.
- Evaluate and continually improve the enrollment process.

The committee began the space planning for the new ESC and assembled a team of clerical and professional staff to develop cross training. We wanted to deliver integrated service to students at a front counter, with specialists backing up this staff to answer more specific and detailed questions. We envisioned a total student contact space, with processing units in another area, separate from the ESC. This model worked well at the University of Delaware and at our local banks.

We chose an organizational model that balanced autonomy and integration. We maintained separate departments with budget, hiring, and supervisory autonomy but integrated our service delivery at the front counter and within the ESC as a whole. Cross training all staff members and rotating them to stations within the ESC leveraged integrated service delivery.

In the early 1990s, our leaders in admissions, registration, financial aid, and the bursar functions had worked closely as a team to implement an integrated student information system. From this intense project, they learned how closely their data and processes were connected. When planning the model for the ESC, they wanted to share their data and common student contact functions while maintaining distinct back office operations. Being distinct meant being responsible for process redesign within their units; being connected meant working together to offer the best service to students across units. These original ideas evolved into a shared management team concept in which these function leaders meet weekly to discuss all enrollment processes that affect students.

Cross training. Cross training staffs among the admissions, financial aid, registration, and bursar functions was an ambitious and sometimes overwhelming undertaking. Although we were uncertain what new body of knowledge our staffs would need, we were sure front line staff should help develop this knowledge. The initial reliance on input from clerical or frontline personnel on the content and delivery of cross training became a critical component of the staff buy-in to this new model.

In developing the initial cross training, the ESC cross-training team, composed of clerical and professional staff, started with the student perspective. The initial planning of the ESC was based on 1994 research conducted at the reception counter in the Office of Financial Aid. Results showed that students were often confused when leaving the financial aid office. In addition, 1996 research showed that all students visited several offices for answers to basic enrollment questions. More recent research in 1999 indicated that new students wanted more clarification on parts of the enrollment process. Specifically, they wanted to know more about how to select courses and finance their education. They also sought more information via the Web. When these freshmen have time or cannot get the information via the Web, they will seek information in person, one-to-one.

The cross-training team limited the scope of their inquiry to students' most commonly asked enrollment questions. In this way, they looked at the parts of the enrollment process from a student's perspective. The team compiled an initial list of 37 items by observing the types of questions students asked at one office about another office's functions. For example, the Office of Admissions staff compiled student questions about financial aid, registration, and payment issues. The cross training, consisting of five modules, prepared all staff to answer these general enrollment questions. In addition, this team created training outlines that emphasized value-added information for students at the close of each transaction. We called this "next-step training."

The following are the five modules of cross training that prepare all generalists to work at the front desk in the ESC:

- *Module One: "Who Are They?"* In this module, generalists learn about areas outside admissions, registration, financial aid, and student accounts. Because we wanted to deliver holistic service to students, we analyzed other functions affecting the enrollment process and invited representatives from these offices to speak to our staff. They included continuing education staff, academic advisers, developers of new academic programs, and providers of special support services for students. Generalists who work at the front desk are expected to explain services of other areas to provide next steps for all students.
- *Module Two: "Who Are We?"* In developing the cross training, we assumed everyone needed to

January 1994:	Preliminary research was done on customer service by observing transactions at the financial aid counter and interviewing students leaving the office (Pellicciotti and Robison 1994). Twenty percent of students did not know their next step in the financial aid process. All financial aid correspondence was changed, and the "next step in enrollment process" concept helped develop future cross training.
January 1995:	Chancellor James Yackel established a committee to consolidate space and the functions within the ESC. Space planning among the offices of admissions, financial aid, registration, and bursar began. A calendar committee was set to coordinate all correspondence to students in the enrollment process.
August 1995:	Site visits were made to benchmark institutions, including the University of Delaware.
October 1995:	Cross training began with a pilot group of clerical and professional staff. All cross training classes used pre- and post-testing of staff to measure increased knowledge base. Cross-training materials were based on frequently asked enrollment questions. The ESC planning committee created the concept of staff rotation ("we are *all* generalists").
December 1995:	The ESC planning committee completed a detailed space program statement for functions within the ESC.
March 1996:	A revised, two-year construction timeline changed the start time of the ESC. Construction of the ESC had been based on moving faculty/staff into a new classroom building and leaving ESC space to renovate. The "staged" concept of the ESC became the new plan.
April 1996:	A baseline study of students being sent from office to office was completed (Pellicciotti and Robison 1996). The types of questions that students asked in each office were compiled. This research was used in developing the cross training.
May 1996:	The ESC planning committee approved initial drawings of the ESC. Committee members and university leaders visited area banks and a local community college. The banking model helped in creating the detailed interior of the ESC and supported the concept of cross training, with personnel rotating to multifunctional work areas.
September 1996:	Alternate space in another building (Gyte) was reviewed, as the staging project in Lawshe continued to be delayed. Gyte space was not possible because of building restrictions. Cross training continued.
September 1996:	The financial aid office closed on Friday afternoons, with counter help available to students through a financial aid staff member housed in bursar's office. This pilot involved shared counter space, with staff relying completely on electronic files and attempting integrated service delivery.
November 1997:	The "staged" ESC opened. The financial aid office shared space with the admissions office in Lawshe. The registration office rotated staff into the ESC but kept operations in Gyte. The bursar remained in Gyte. Space planning for the next stage began.

Figure 6.1 Enrollment Services Center Timeline

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December 1997:	The completion of the Anderson building on campus was delayed, so management faculty moved into Lawshe on the second floor. The initial plan of ESC called for the first floor to be a student contact area and the second floor to house processing and administrative personnel. This change in plans sent the ESC planning committee back to the drawing board. Some back office processing areas moved to the first floor. ESC remained a student contact space.
September 1998:	The bid on construction was made.
November 1998:	The construction on the first floor of Lawshe began.
February 1999:	The registration office and bursar moved to the ESC. ESC moved from staged operation to all four areas together and rotation of staff at the front counter.
March 1999:	IBM visited ESC to evaluate it for best practices recognition.
September 1999:	Research of freshmen showed students wanted a better understanding of the enrollment process (ACT Evaluation/Survey Service 1999).
December 1999:	Follow-up research indicated students wanted information in person and via the Web (Didelot 1999).
April 2000:	The university received the IBM Best Practices Recognition for the ESC.
January 2001:	Focus groups of early and late financial aid filers showed an understanding of steps in the process.

Summary: Site visits to the University of Delaware, an IBM Best Practices institution, as well as to area banks helped the space planning process. Through these visits, ESC was envisioned as a student-contact-only facility, with processing occurring in back offices. A delay in construction of the ESC led to staging the ESC, which helped improve the functions. Student research conducted at the financial aid counter and through exit interviews of students leaving the different enrollment service offices helped the cross-training and Web planning processes. Results indicated that students were often confused and had to visit several offices for answers to basic enrollment questions. More recent research indicates that new students continue to seek clarification on parts of the enrollment process (ACT Evaluation/Survey Service 1999). Students also want more information via the Web. When they have time, they want information in person, rather than through letters, group presentations, or other sources (Didelot 1999).

Figure 6.1 Enrollment Services Center Timeline

understand the flow of the enrollment process and the offices contained within it. We created a high-level overview of the enrollment process (admissions through fee payment), with background information on *why* certain offices had certain functions.

- *Module Three: "Answering the Most Commonly Asked Questions."* With assistance from training experts at the university, we documented responses to the most commonly asked enrollment questions. The cross training provides step-by-step answers to these questions (see Figure 6.2 for a sample question and answers). For example, one of the most frequently asked questions is, "Where is my money?" Generalists learn to check the student database to determine if the student has applied for financial aid, if the financial aid application is complete and aid awarded, and if the aid has been moved to the student account for disbursement. Part of the cross-training documentation included sample screens from the student database, with fields containing critical student data highlighted.
- *Module Four: "Functional Training."* Final training for generalists involved updating the student's

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Key Question: What kind of financial aid is available? Where can I get information on scholarships and financial aid?

Key Concepts and Terms

1. Gift Aid
   a. Does not have to be repaid
   b. Includes federal and state grants, fee remissions
2. Self-Help Aid
   a. Requires repayment or must be earned
   b. Includes student loans and work-study
3. Sources
   a. Federal
   b. State
   c. Institution
   d. Private

Forms and Reference Materials

1. FAFSA
   a. Free Application for Federal Student Aid
   b. Complete after January 1 but before March 1 priority filing deadline
   c. Only form required from university students to be considered for financial aid
   d. Only form required from university students to be considered for university need-based scholarships
2. Merit Scholarship Application
   a. Only form required from university students to be considered for academic (not need-based) scholarships
   b. Entering freshmen must have their admissions application completed by February 15
3. "Financing Your College Education"
   a. Financial aid brochure
4. Web site (see Job Aid 1)
   a. *esc.calumet.purdue.edu/finaid/index.asp*
5. *Financial Aid Student Guide for 2000–01* from the U.S. Department of Education
6. Job Aid—Financial Aid Programs

Figure 6.2 Sample of Cross-Training Module Three

electronic record by admitting a student, registering a student, or accepting documents for a student's financial aid file. This required functional training and background information from two of the previous modules.

- *Module Five: "Rotation."* Before we had the ESC space available, we rotated staff to separate front counters of the various functional areas. Currently, new generalists work at the front desk during their first rotation with an ESC buddy, another generalist who provides support and direction.

All clerical and professional staff members have a specialty and an assigned space in their home department. Through rotation to the ESC, these staff may work as generalists only 10 to 15 percent of the time. This generalist role and time associated with it is part of the staff member's job description. All clerical staff work as generalists and have comparable job levels.

All professional staff also undergo cross training. While some professional staff work at the front desk for their department's block schedule, many others work in the evenings (from 4:30 to 6:30 PM as administrators on duty). The front desk coverage is segmented weekly into one-and-one-half-day blocks of time. Each of the three departments (admissions, registration, and financial aid and student accounts) takes one block per week and schedules its own clerical or professional staff to work at the front desk. Specialists who back up these generalists are also scheduled by their individual departments.

Space planning. We made space for student contact a priority. We wanted students to have the best furniture and open space so they would form a positive first impression of the university. Even though our own office moves were included in the tight project budget, we agreed that students came first, clerical staff came second, and professional staff came third.

We opened up the former admissions office, expanded existing space across a hallway and several classrooms, and created a large room. The ESC looks like a bank lobby with a small computer laboratory attached. We used slat boards and lights to set up retail-like displays. We designed a large front desk/counter that was round and low and contained two computer terminals with space for six workers. This front desk is the room's focal point. Specialists' work areas contain a small counter for students with space for one worker, computer, and printer. These work areas line the perimeter of the room. A glass-enclosed student accounts area takes up one wall.

The ESC is a clearly marked, open space. No partitions block the back view of the room. Students immediately know where to go when they enter the room. The physical arrangement, the computer terminals, and the highly trained generalist at the front desk support our mental model of the enrollment process. We provide information in person or on the Web in environments that are intuitive and easy to navigate. We are particularly sensitive to the needs of first-generation college students and their families, and we have made the entry to the ESC very welcoming. Easing this transition to college is one of our goals.

We realized early in our planning that the generalists at the front desk could not answer all levels of questions about enrollment. Specialists from admissions, registration, and financial aid and student accounts rotate into work areas. These specialists' work areas are flexible and can be assigned to any one of the three areas. Private offices for professional staff in admissions, financial aid, and registration and student accounts line one wall.

We planned for lines of students, even as we anticipated technology reducing them. The open space in the middle of the room is used as waiting/lounge area most of the time. During peak payment and registration times, stanchions create queues for students. Financial aid and student accounts staff may cover four to eight workstations, with registration and admissions taking fewer during payment deadlines. During peak times, as many as six professional staff may work at the front counter, helping students who may be lost or confused in the process.

Technology. Critical to the success of the ESC is the ability of students to initiate and complete transactions for themselves. The ESC planning committee envisioned that the entire enrollment process would be available to students via the Web. We are close to making that a reality. Prospective and current students can do the following:

- Check course availability. (It is set up like an airline schedule.)
- Determine how their courses will transfer to Purdue University Calumet.
- Complete the entire financial aid process.
- Check their personal class schedule.
- Review billing information.
- Pay their tuition and fees.

These functions have evolved over the last five years. Within the next year, we will introduce an interactive Web admissions application, which will immediately update our database; Web registration;

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	●
Web Portal	◐
▪ Personalized	◐
▪ Customized	◐
▪ Community oriented	◐
▪ Process oriented	◐
Service Support Center (telephone/e-mail)	◐
Customer Relationship Management (CRM)	●
Document Management	◐
Back Office Process Redesign	●
Year Recognized	2000

● *In production*
○ *Implementing*
◐ *Planning*
⊙ *Designing*
◉ *Not intended*

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and an automated degree audit function, completing the enrollment process via the Web.

Our goal is that all students, including distance learners, will be able to inquire and build a contact record with Purdue University Calumet. When prospective students apply for admissions, their previous contact information will be available (to update or verify), and the other documents or test data needed for admissions will immediately be provided. Students who have "stopped out" of the university and are reentering will follow the same procedure, updating their records and moving on to registration. Non-degree-seeking or continuing education students will be accepted via the Web immediately, without the need for additional documentation.

All admitted and continuing students will be able to inquire about the courses they need to complete their program of study. This Web degree audit will be individualized to each student, depending on their program of study, any transfer work, and their coursework, whether completed or in progress at Purdue University Calumet. Students seeking to change majors will be able to view a "what if" scenario that reviews the courses necessary to complete a new major. Selecting and registering for courses will be done in real time, with immediate invoicing and payment options available. The entire financial aid process is currently available to students via the Web.

It is the combination of this technology and highly trained frontline staff that creates the high touch/high tech balance that John Naisbitt predicted in *Megatrends* (1982). The December 1999 survey of freshmen at the university reinforced this concept as students sought the Web for routine questions but wanted a face-to-face discussion with a knowledgeable staff member for specialized help. A high touch/high tech balance is a goal of the ESC, with students choosing how they want to connect with the university.

Lessons Learned

Since we began staging the ESC, many colleges and universities have visited us and met with our staff. The University of Akron sent us questions in advance and we supplied answers. We have included some of these questions and answers in Figure 6.3.

What We Would Do Again.

- *Trust our instincts.* We relied on data for decision making, but we also relied on our instincts as consumers as we continued to shape the ESC. We know the places we like to visit and the satisfaction we receive from a transaction with a knowledgeable and helpful customer service representative. When technology works well, it saves time and makes decision making easier. We have learned to trust this sense of consumerism. However, while we trusted our instincts, we also knew that research backed up our assumption that students are consumers. Students expect reliable and accurate service from every encounter (Zammuto, Keaveney, and O'Connor 1996).
- *Trust our staff.* It is important to involve staff members early in the project planning. We had a team of clerical staff design the outline for our cross training. We had town hall meetings. About nine months after the ESC opened, we conducted focus group sessions with our staff and learned that many things could be improved. We made some improvements and explained to our staff why we couldn't make others.
- *Visit other colleges and businesses.* We learned the importance of benchmarking both within and outside higher education. The ESC design came from a local bank. The design for our displays came from retail card stores. When we attended the IBM Best Practice Partners Forum at Brigham Young University, we visited different function areas at BYU. We met with BYU staff to learn more about their automation. Professional and clerical staff in higher education share readily, and we have learned to take advantage of this openness.
- *Accept that some innovation doesn't work.* We called many of our projects "pilots." We admitted to our staff that, sometimes, we didn't know what we were doing because much of it hadn't been done before. They accepted this honesty. We would plan, implement, evaluate, and then make changes. Sometimes projects worked and sometimes they didn't. This became part of the learning cycle. For example, one pilot that failed involved the scheduling of staff at the front counter. We purchased software that slotted employees into shifts, and we attempted to centrally schedule all generalists for front counter

1. **What kind of staffing model is used? Do the one-stop frontline employees rotate back into their home departments?**

   Our staffing model balances the continued independence of the three function areas with shared responsibility at a front counter. All of our professional and clerical staff members have been trained as generalists. When they work at the front counter or as administrators on duty, they work as generalists. The administrator on duty is a professional staff member who rotates into the ESC during the evening. The generalists are also specialists in their own departments. In this role, they rotate into the specialist work areas in the ESC or they work in their specialist function in back office processing units.

   We believe that that everyone should have a home department and that the ESC should be designed as a student contact area, with processing done elsewhere. These beliefs helped us develop our own definitions of generalist and specialist roles. Other models exist in which there is a higher degree of integration, and back room processing and specialist knowledge are shared. Southern Alberta Institute of Technology and Fordham University have accomplished this higher level of integration.

2. **How was the plan implemented?**

   We implemented the plan in stages. We actually completed the cross training for a pilot group of generalists and found that our space for the ESC was not ready. We kept the momentum of cross training by rotating cross-trained staff from one office to the other. Then, financial aid closed its front counter on Friday afternoons and moved into the student accounts area to serve students. Later, our chancellor supported a staged ESC, so we set up a front counter in the admissions office, which was staffed by rotating generalists. As with many implementation plans, ours had delays and required quick fixes. We kept supporting the concept of cross training in spite of these changes.

3. **What is the administrative structure used to support the center?**

   Admissions, financial aid and student accounts, and registration are still separate departments but work very closely and share in all decision making related to the ESC. These directors are the ESC managers; they meet every two weeks with specific ESC items. A subcommittee of clerical staff from each of the three areas brings concerns to the ESC managers. Once a month, all the staff from these offices meet for continued cross training and a general information session.

4. **Were merit increases provided to the front line employees?**

   It took some time for all cross-trained generalists to reach the same classification level. The generalist duties were also written into their job descriptions (at 10 percent of their time). All clerical and professional staff have received cross training.

5. **How were the front line employees selected? Were there classification changes? Incentives?**

   We had many debates about creating a special group of generalists who would only work at the front counter. In the end, we decided that all of us would be cross trained. We were concerned that we would develop a front staff culture and a back office culture. Some universities have chosen to move in this direction of a designated generalist staff, however, and have been successful.

6. **What happened to the employees who weren't selected?**

   In terms of selection, we will relate how we initially scheduled the front desk. We found a software package (as a group, we really like technology) that would help us schedule each of more than 40 staff members at the front desk. After a few weeks, we learned that both the staff and departments administrators didn't like it because the centralized approach didn't allow for the differences among departments in terms of workloads. It also worked against a well-developed

Figure 6.3 Questions Institutions Should Ask as They Undertake Projects

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scheduling process within the departments. We then tried block scheduling so that departments would take a portion of the week and schedule their own staffs at the front desk. Each department was also responsible for the specialist work areas. Block scheduling worked well for us, as departments had more control over workloads and releasing employees to work at the front desk.

7. **What happens with the employees in the home departments?**

   The ESC is a student contact space. Each employee has a home department. Unfortunately, our home departments are spread over two floors of our building. Our directors have had challenges with employees in three and sometimes four different locations. We think creating a student contact area (an ESC) is a very good idea. However, we all need a connection with a work group, so back room processing space needs careful attention in your space planning.

8. **What areas were particularly challenging in terms of training?**

   Learning financial aid and student accounts ranked next to learning statistics for many of our staff. We have a wonderful financial aid director who is very patient and makes financial aid training less overwhelming. However, as we evaluated our training, we scaled back on financial aid training. We redefined the term "basic information" several times.

9. **What areas were particularly challenging in terms of the overall implementation?**

   This was a long-term project, and we needed patience and persistence. We had to reassure our staff that the space was really going to be available. Many times, we had to tell our staff that we were trying new things and we didn't have all the answers.

   You really have to believe that what you are doing is best for the students and the university. Our timeline on available space changed. Implementation of new, Web technology took longer than expected. We cross trained our first class of generalists, and 50 percent of the group was hired by other areas of the university, retired, or left in some other way. Our success was in our persistence and in the support we received from our staff and the university as a whole.

10. **What measures have been used to evaluate the overall effectiveness of the ESC?**

    There are various measures. We know from a fall 1999 freshman survey that most new students still have questions about the enrollment process. However, a follow-up study of that same group showed that students wanted information from the university via the Web or, if that was not available or sufficient, from direct contact with an individual. This high touch/high tech orientation of our youngest students supports our work within the ESC.

    We did a benchmark study of financial aid transactions in the mid-1990s. Twenty percent of the students helped at the counter left the office without knowing their next step in the process. In the last few years, we have implemented many types of communication to reduce this confusion. We conducted follow-up focus groups of financial aid students to determine what intervention works best with both early filers and later filers of financial aid. Many of our interventions have been possible because of the shared environment in the ESC. All staffs have been cross trained on the 10 steps of the financial aid process. All staff can explain to students how to access their own step in the financial aid process through helping them access broadcast messages via the Web.

11. **What are your demographics?**

    Purdue University Calumet is in northwest Indiana, in a multicultural, urban region. We have 9,100 students, all commuters. Almost 30 percent are minority students; about half of all students are full time. About 50 percent of our students receive financial aid.

12. **How were services selected for inclusion/exclusion in the service center? Are there plans to add additional services?**

    Chancellor James Yackel chose the following four functional areas for the ESC: admissions, financial aid, registration, and bursar. (Bursar has since combined with financial aid and is called student

Figure 6.3 Questions Institutions Should Ask as They Undertake Projects

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accounts.) We have submitted plans to include additional areas, if only for rotation, during peak enrollment times. These plans include student leadership and development (formerly student activities) and career services. We are very interested in those colleges and universities that wrap services around entering freshmen. Johnson County Community College is one institution that we want to visit.

13. **How are staff members scheduled? Does scheduling or do services (e.g., stations a and b for financial aid only) change during peak time periods?**

Realizing that peak periods vary by function area took some group analysis. We all assumed we had the same peak periods (much of August and the early weeks of January along with a couple of summer registration periods). After analysis, we realized that the financial aid office had a longer peak period than registration. Financial aid peak started in early August, with increased activity during payment deadlines. The registration office had a few hours of peak time during the start of registration periods. The admissions office was busiest during the week before classes started. The student accounts office was busiest two days before payment deadlines. We sketched out these peak periods by function area.

We questioned whether the new space could handle those few days when both financial aid and bursar functions were both very busy. We handled this load in different ways, most of it learned through trial and error.

During 90 percent of the time, we have flexible, specialist work stations. During peak times, we make adjustments. For example, when the workload for registration increases, we increase the number of registration work areas and simply decrease the work areas at a function that is not as busy.

14. **Has there been a measurable impact on enrollment? Student satisfaction? Other measures?**

Since 1995, we have been steadily increasing our enrollment at about 1 to 2 percent per year. However, in fall 1999, our enrollment declined. It appears that for fall 2001 we are back on track. Our enrollment increase came about through a combination of efforts, as did our enrollment decline. One of the most important steps we have taken since 1995 has been to plan all communication and activities through admissions, financial aid, registration, and student account functions. We have a very detailed communication plan, which we use to increase the number of students who register and pay each semester. Our yield of students has increased from 65 to more than 70 percent, and the percentage of students cancelled for nonpayment has been reduced from 10 to 8 percent. One of the strongest motivators for us to create the ESC came from knowing the demographics of our students. Almost 75 percent of them are first generation college students. Almost 30 percent come from underrepresented groups. These students do not know the college search process. Deadlines and timelines and financial aid complexities are all a mystery to them. We work very hard to make their entry (or reentry) into college a smooth one.

15. **How has staffing changed with the introduction of additional Web services? Do you anticipate additional changes in the future?**

First, our roles as knowledge workers have changed. All of us who work at the front counter have a dual role. Not only do we look up information for students and answer their questions, but we also need to instruct students on finding this information for themselves on the Web. Also, because students can now look up routine information for themselves, their questions to us seem to be more complex. We have not added new staff because of the ESC. However, the mix of jobs within our areas has changed; we have created hybrid positions combining Web technology and functional area skills. We anticipate the need for increased student worker training, with more assigned to our self-help, computer area. We believe we will see an increase in e-mail traffic with very specific questions as well as the need for more Web

Figure 6.3 Questions Institutions Should Ask as They Undertake Projects

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interface staff (working virtually with students as the students access information over the Web).

16. **For which students are the services provided—prospective, current, former?**

    All of those groups use the ESC and the Web services. Prospective and former students have some restrictions on the authorized Web sites. Currently, only admitted students receive a personal identification number to access the authorized Web site. All prospective and former students can access class schedule information, career services, and detailed information on scholarship searches.

17. **How does the frontline employee decide when to send the student to a specialist? How much time does a frontline employee spend with customers before sending them to someone else? How much ownership of a problem situation is maintained at the front desk?**

    We have had many discussions about these issues. In fact, as we look at a new service in the Financial Aid and Student Accounts Office, we continue this discussion. We are attempting to define what is basic enrollment information. A person at the front desk should be able to hand the correct Free Application for Federal Student Aid to a student and explain the basic elements of completing it, including instructions on how to complete the application on the Web. Any student questions regarding dependent versus independent issues trigger a referral to a specialist. Our experience has been that financial aid questions, in particular, move quickly from general to very specific.

    The person at the front desk is encouraged to call for assistance when a line forms. Remember, everyone in the ESC is trained as a generalist. We are working hard at reducing the lines by offering on the Web those services that used to generate lines. For example, students can now print a schedule of classes via the Web, print their permit to register, check class availability, look up their financial aid file, and their total accounts (bills).

Figure 6.3 Questions Institutions Should Ask as They Undertake Projects

shifts. No one liked it. It interfered with the traditional process of departments determining schedules. Centralized scheduling also did not respond to the varying workloads of the departments. Generalists suggested that departments schedule generalists for the front desk, which has worked well ever since.

- *Give credit.* The ESC exists because 45 people in enrollment services took the risk to learn more about admissions, financial aid, registration, and student account functions. We have recognition lunches as staff complete their cross training. We encourage staff to present locally and nationally and talk about their accomplishments in the ESC. Visitors who come to the ESC always meet with a team of our clerical staff. Giving credit increases the rewards for everyone.
- *Create an appealing space for students.* We made a commitment that student space should be open and well furnished. We make students a priority in the ESC. We do not take incoming phone calls at the front desk, and we try to answer all student questions fully. Once the ESC was completed, we noticed that students respected the space that had been carved out for them. They were quieter, had fewer complaints, and complimented our staff. We learned that open, pleasant space is symbolic to students. It sends a message to them, and they respond in kind.
- *Apply for the IBM Best Practices Recognition.* We learned a great deal when IBM and peer institutions evaluated us two years in a row. Attending the best practices forum was a tremendous learning experience. Our whole institution has benefited through this recognition. We invited IBM representatives on campus for a press conference and for a presentation of a plaque to our senior staff. We held a special recognition ceremony for all our cross-trained generalists and presented them with a certificate and copy of a congratulatory letter from the governor of Indiana. The university's new student posters have a tag line on top that reads, "An IBM Best Practices Institution." Every college or university visiting the ESC learns how the IBM recognition has helped our entire staff continue to innovate.

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What We Would Do Differently.

- *Not limit workspace.* In the ESC, we have different size work areas for specialists. The smaller area limits the specialists' ability to hand out a variety of forms (from admissions, financial aid and student accounts, and registration). We should have designed these as truly multifunctional work areas. Ideally, we should have designed work areas that could be easily moved around the ESC.
- *Be aware of possible sound problems.* We designed the ESC without an architect (due to funding limitations) and, because of that lack of expertise, we have sound issues in the open space. We should have made our student self-service area larger. Right now, students crowd the personal computers.
- *Plan for multiple meeting rooms.* We experimented with the concept of a shared meeting room within the ESC. Any administrator or clerical person can meet with a student and family in this room. We now wish we had three or four of these meeting rooms.
- *Offer multiple Web services.* We started the ESC with some Web applications in place. We wish we had had more in place when we opened the doors. Initially, at the start of classes, the line at the ESC front desk became extended with students wanting print outs of their schedule of classes. Once we made these schedules available online, the lines decreased. During final payment crunch times, we learned to channel students to the self-service area to look up their own student accounts and write a check to drop in a front desk drop box. We learned that even simple Web applications and queries decreased the congestion and lines in the ESC.

Planning Considerations. We have met with many other colleges and universities who are planning or implementing enrollment centers. Some timelines are short (six months) and others long (stretching over six to seven years). Following are the recommendations we would like to share:

- *Don't attempt too much change at once.* Some institutions plan to implement a new student information system and an enrollment services center at the same time. If possible, sequence these major projects, with some recovery time in between. Either of these projects involves many hours of planning, in many cases with the same department heads and with their staffs. Both projects involve extensive communication to the campus community, training of staff, and dealing immediately with operational issues. People's time is a resource. Sequence your changes.
- *Plan up and down in the organization.* Cross training staff, implementing technology, and creating space call for high-level support within the organization. This should include the president and senior staff and all those involved in facilities and infrastructure planning. However, mid-managers and frontline staff are critical to the success of this project. These subject matter experts work with students every day; they hear their questions and understand how students can become snarled in processes. Involve all levels of staff early in planning the model and include them in benchmark visits. The only way to learn about

Purdue University Calumet

Part of the internationally respected Purdue University system, Purdue University Calumet has developed from its World War II roots into a comprehensive regional institution. It is committed to student success, faculty and staff excellence, a high-performance learning environment, and enhancement of regional and economic development. More than 9,000 students, including 8,000+ undergraduates, attend Purdue University Calumet. They pursue associate, baccalaureate, and master's degrees in addition to professional certificates in some 100 fields of study. The university's 13-building campus sits on 165 acres just outside the Chicago metropolitan area in Hammond, Indiana.

Purdue University Calumet offers a growing array of technological, support, and ancillary services designed to help students obtain degrees/credentials in response to 21st century challenges. Its graduates have earned nearly 31,000 degrees and, according to a recent alumni survey, are extremely satisfied with their education.

With students ranging in age from 17 to 70, with an average age of 27, Purdue University Calumet claims a diverse body of enrollees. Minority students comprise approximately 30 percent of the total body. The university also boasts what is believed to be the largest number of Hispanic students—nearly 1,200—of any campus in Indiana.

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environmental changes and new mental models is to meet those operating under a different set of rules. Visits to other colleges and universities and attendance at professional conferences may not guarantee a change in vision, but may help to leverage change.

- *Try staging your innovations.* A delay in renovating space forced us to stage the ESC, so that we tried rotating to a front desk before the entire space was ready and all the staff had moved. This trial rotation helped us create the best configuration for the front desk, rethink our rotation schedules, and test having processing offices outside the ESC. Even a pilot of integrated service delivery can teach many lessons.

Conclusion

Organizational change starts with mental models. As our view of the world changed, so did the way we envisioned processes. At Purdue University Calumet, we see the enrollment process as a way of connecting students to higher education. We want to demystify this process for students and bring those who are outside our institution inside. We are striving to do this through the physical environment of the Esc; through cross training of all staff in admissions, registration, and financial aid and student accounts; and through our Web applications. We want to provide integrated self-service for students in person, and on the Web.

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Johnson County Community College

Generalists in Cooperation with Specialists: A Working Model

Dennis V. Day and Julie Pitts

Overview

As health maintenance organizations (HMOs) and proffered participation organizations (PPOs) have emerged, the emphasis on doctors as general practitioners has increased and the specialist has been pushed behind a curtain of referrals. The job of the general practitioner is to assess the patient and provide a diagnosis based on the patient's symptoms, medical history, and present condition. Specialists are used only on referral of the generalist and insurance administrative structure. We have learned many lessons from this system over the years. General practitioners must possess an exceptional knowledge of a great many things. Assessment of a person's health and well-being occurs (in most cases) through this initial contact. A specialist addresses more complicated illnesses or symptoms.

For a moment, let us stretch that concept and place it into an educational setting. The patient is a student, and the doctors are student service professionals. While we are not making the case for HMOs or health care management, in general, there are correlations to process management. In the past, new patients/students were told, "fill out this form before you can see the doctor/advisor." A new model allows a generalist, someone with a breadth of knowledge, to engage students to, in effect, diagnose their needs. After this triage or assessment period, students are referred to specialists with information about the students that will assist the specialists in the counseling session.

This is essentially the process Johnson County Community College developed to address students' needs. It worked from an established method of operation, refined the process, and put it into action. This chapter will detail how the college addresses its motto "what is best for the student" through the operation of a "Success Center" and how the staff work as generalists.

Reflections

During a five-year period, student service staff at JCCC went through a time of reflection about the services it provided to students. During this period, a new mission and set of values were written that precipitated many changes for the division. As this journey began, all areas of student services were included in countless discussions about mission, values, services to students, and the possibility of a building that would bring student services into one structure.

As in any discussion of how systems might change, most conversations centered on how "my" job or what "I" do would be affected. To allay possible concerns, all

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Julie Pitts, *Success Center manager at JCCC, develops job descriptions, operational manuals, and training materials for the newly created center. She received her bachelor of science at Northwest Missouri State University and her master of science in counseling from the University of Nebraska at Kearney.*

student service employees were invited into early discussions of how their duties were related to other areas. In each of these discussions, the staff were also questioned about how they saw the new facility as it related to what we do for students. Top-down and bottom-up, the change model is student focused, purposeful and dynamically aimed at satisfying students. JCCC choose to be an educator rather than an administrator, interdependent rather than independent, learner rather than a teacher and to satisfy needs, be better with less, create a memorable experience, and deliver on a vision of services.

Creation of the Success Lab

Through these many discussions with staff, we realized we needed one place where students could go to get answers to questions. This need, which evolved from all groups, became the central theme for planning processes, facilities, and staffing. The next step was to try out this concept in a "lab" setting to see if it would work, to see if we could accept it, to see if students would embrace it. We had the opportunity to create a 1,000-square-foot space using a reception area for counseling services and a reception/resource area for career services. This Success Lab was to be the first stop for students with questions about the college or admissions or to simply ask, "What do I do now?" With the help of new administrative software that gave students Web access, we also provided a dozen computers for the lab. This allowed students to access their own academic records, register for classes via the Web, apply for financial aid, research career and college transfer options, complete a variety of interest assessments, and do a variety of other tasks.

Students now had unrestricted access to their information and a place to get help accessing that information. Along with answering entry-level questions, the new Success Lab provided a place for continuing students to get information or to register. The importance of this lab will become more apparent later as the evolution of the staff in the Success Center is discussed. Initially, we wanted to see if students would go to this location and how staff would provide what the students needed without creating frustration or becoming an impediment to their career and educational journey.

Evolution

We found that students would indeed go to the lab; in fact, they flocked to it and we became overwhelmed by their needs. Needed changes in staff training became very apparent as the students made greater demands to the frontline staff. In our evaluations and discussions of this experiment, we found several themes were clearly evolving:

- Student development should be the primary concept when dealing with students.
- Students' needs can be met in one location when comprehensive information is available.
- Training frontline staff must be extensive and dynamic.
- Contact with students does not have to impede the "paper" processing.

Student development. Making student development a primary concept allowed the staff to work with the student as a whole person. Finding out students' career, educational, and life needs helps the college assist them in attaining their goals. The Success Lab and, later, the Success Center staff asked, "How can we help you?" and "Where are you heading?" as they greet everyone. These are the basic building blocks of the JCCC experience.

Comprehensive information. Through the Success Lab experiment, we found that it is beneficial to provide one location for entry to students. Students appreciated that staff provided answers to their questions rather than send them on a merry-go-round. Less frustration occurred and less time was needed in the offices because students received answers to most of their questions right away. This also created better-prepared students as they went into sessions with counselors, academic advisors, and career specialists.

Training issues. Experience with the lab setting showed us that our staff would require extensive training in all areas of student services to be most effective. Having enough knowledge about all areas became important as students grew accustomed to the Success Lab. Staff must receive constant information updates so they can provide students with current and correct information.

Paper processing. A result of the new setup was that the points of student contact became separate from those personnel who processed the "paper." Because staff trained for student contact helped students on the

frontline, there were fewer interruptions to those processing paper behind the scenes. Therefore, accuracy and efficiency in those areas increased.

Development of the Success Center

These emerging themes developed from an experiment that helped crystallize the student services planning process. With a new facility on the drawing board and basic changes occurring in delivery of services, we had to finalize plans for operation. The hub in this delivery of services quickly focused on the "Success Lab" concept. The new Success Center would expand from 1,000 square feet to 5,000 square feet in the new facility, which would become the Student Center building. The central focus of the Success Center was to provide students with access to their records and information about the college and college-related topics. Most importantly, the Success Center was intended to assess where students are in their educational journey and how JCCC can assist them.

Staff became integral to attaining these goals. The following discussion will focus on the development of the Success Center staff, which has been continuous as the level of service and information has changed. In a practical sense, this model certainly fits what we are doing at JCCC and can be adopted in other college and university settings.

Staff Cross Training

Traditionally, most student and support services have worked independently of one another, with only minimal collaboration when required to complete functions related to registration and fee collection, degree intents, financial aid, and other tasks. Two factors led to the Success Center model and the cross-trained, student services information and resource assistant position. The traditional model does not provide adequate means for ensuring that students are best served. Neither does it recognize that "learning and personal development occur through transactions between students and their environments broadly defined to include other people (faculty, student affairs staff, peers), physical spaces, cultural milieus" (American College Personnel Association).

The evolution of the cross-trained position and the model have progressed over the last five years, encompassing the following:

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
• Redesigned processes	●
• Generalists/Specialists	●
• Cross-functional teams	◐
• Measurable outcomes	◐
Web Portal	●
• Personalized	●
• Customized	●
• Community oriented	●
• Process oriented	◐
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	⊙
Document Management	●
Back Office Process Redesign	●
Year Recognized	1999

● *In production*
○ *Implementing*
◐ *Planning*
⊙ *Designing*
⊛ *Not intended*

- The identification of student needs and staff values in providing service to students, which serve as the basis for the model
- The designing and construction of a new building to support the model
- The implementation of paperless processes and Web services
- The development and modification of the role and function of the cross-trained staff who serve as the frontline contact in responding to students and connecting them to information and resources

Mission and Goals

The responsibilities and duties of the resource assistant staff as originally conceived were much more limited in scope than they are now as a result of trial and error. It was evident from the beginning that cross training would benefit students as well as processes and expand our

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workforce. However, we had not developed a plan to determine the actual duties and responsibilities of the cross-trained staff. We believed our staff would come from the attrition of staff in other departments who looked for new opportunities as their roles became less necessary with the implementation of Web services and imaging. To refine our ideas and create a specific action plan, we returned to the original three questions we asked in our 1996 meeting of all student services staff regarding the vision of our student success model:

- What do we value in student services at JCCC?
- What processes or procedures do we need to change to ensure our values are met?
- What does our space need to look like to facilitate the processes and functions we have developed to reflect our values?

A review of the outcomes of that process produced the following mission statement:

> The Student Success Center is committed to providing support and assistance to JCCC students and Johnson County community members in their career/life and education planning and decision making process in a developmental environment that encourages independence and personal responsibility.

The associated goals and duties of the cross-trained staff in the Success Center will:

- Provide professional staff and resources in a learning-centered environment that promotes and enhances the development of independent information users.
- Coordinate with all student service departments to provide efficient, integrated service and information.
- Provide resources in a variety of formats, including software, Internet access, books, periodicals, and brochures for greatest accessibility and use.
- Provide support services for special needs populations to promote a positive atmosphere and ensure access to resources.

The goals of the model and duties of the resource assistant position are to:

- Integrate all services.
- Contribute to a learning-centered environment that engages and enhances the development of independent information users.
- Serve in orienting students to all student, campus, community, and support services.
- Facilitate each student's engagement in his or her own individual career and educational planning process.
- Support and promote the referral services of content specialists such as academic and career counselors, financial aid advisors, veterans and international affairs liaisons, and others.

Development of Knowledge Base

Each student services department was asked to create a list of its most frequently asked questions and to develop baselines of knowledge that each staff person, and each student, should know about each department and its services. This was necessary to develop the role and function of the resource assistant staff. It also helped us define how the staff would respond to student needs and represent each department's content. The departments then collaborated in designing content-specific training curricula and learning outcomes from these questions and baselines. This material was also used to develop answers to frequently asked questions and a variety of other materials that were used in training new and existing staff, based upon the Madeline Hunter lesson planning method. Each department has content experts train and update staff via regularly scheduled staff meetings, scheduled one-to-one or small group training sessions, and in other ways.

Training

Training of the resource assistants consists of 15 to 30 weeks of one-to-one, small group, and full-staff training sessions. The sessions cover specified content, shadowing of mentors and veteran staff, written activity, and small and large group assignments. For example, during the first three weeks of employment, trainee staff complete training in a specified variety of venues focused on specific content areas. They also shadow veteran staff, keeping a journal of topics and situations they have observed that they will discuss later with veteran staff mentors during scheduled mentoring sessions. During these first three weeks of employment, trainee staff is under the supervision of veteran mentors but cannot address student questions; instead, they are expected to assimilate information and begin anticipating student

questions. These veteran mentors model exemplary interpersonal skills, attention to detail, and care and concern for the individual student situation. They also display knowledge of a broad array of resources and expertise in a variety of procedures, processes, paperwork, and referral sources related to student services and campus and community life. Perhaps most importantly, they anticipate unasked student questions that open the door to greater student interaction and engagement, ultimately benefiting the student.

After about three weeks on the job, trainee staff begin presenting new student orientations and working with students both in person and over the telephone regarding general issues and needs. Veteran staff assist and support them as they continue building their content knowledge in training sessions. Following the completion of the 15- to 30-week foundational training, trainee staff continue developing their skills and knowledge base by mentoring other less experienced staff and leading mini-training sessions during full staff meetings.

One of the foundations of the resource assistant position is to engage each student in his or her own individual development and connect students to the resources they need. This process is essential for student success. As Chickering (1993) notes,

> By looking at individual identity, we are reminded that there is more to development in college than acquiring information and developing intellectual competence. Colleges and universities will be educationally effective only if they reach students where they live and only if they connect significantly with those concerns of central importance to their students. (p. 453)

This fundamental belief shapes how the resource assistants serve students. The initial plan called for these frontline staff to be greeters and information disseminators. However, after reviewing the most frequently asked questions that each department prepared, we realized these staff would need to be responsible for more information and knowledgeable of more processes and procedures than originally anticipated. How could we expect staff to provide comprehensive information and appropriate referrals without first fully understanding how processes integrate or conflict? And how could we expect students to understand and integrate processes without having done so first ourselves?

From Three Tiers to Two

This situation caused us to rethink how cross-trained staff would work within our model to serve students. We began to consider what skills and information that staff needed to respond comprehensively to student needs and information requests. In our original plan, we imagined a three-tiered structure in which our cross-trained staff would provide succinct answers and then referrals to departmental content generalists. These generalists would offer some higher-level information before finally referring the student to departmental content specialists. We learned that we were actually increasing the steps a student was required to take to accomplish tasks. Examples of this included financial aid and admissions, in which we explained processes, deadlines, and paperwork to students and then referred them to these specific staff to obtain necessary forms. Upon receiving the paperwork, students were advised of the same processes and deadlines, thereby creating redundancy and adding a step that could have been avoided if the cross-trained staff had served the student in the first place.

Knowing that it would be more efficient to cross train our staff, the various departments again collaborated to determine in which areas knowledge was critical so that staff could best serve students. As a result, the cross-trained staff began learning the knowledge and skill competencies once held by only the frontline content generalists. They completed the same training each of these content generalists had completed. As a result, we moved to a two-tiered structure. Currently, the content areas that the resource assistants are responsible for include the following:

- Career and educational planning
- Academic advising and transfer information
- Internships
- Service learning
- Continuing education and noncredit course information
- Vocational program information
- Cooperative program information
- Student activities, clubs, and organizations

- Support services, including tutoring and child care
- Admissions
- Registration
- Testing and assessment
- Access services for students with disabilities and deaf and hard of hearing students
- International student information
- Veterans affairs
- Financial aid
- Job listings
- Campus events
- Web services assistance
- Records

Within this two-tiered structure, the cross-trained staff performs the same duties as the content generalists for each department in terms of offering information and forms, explaining processes, maintaining records, and providing appropriate referrals to specialists. However, the cross-trained staff is now able to work at both designated stations or throughout the center, according to each student's specific situation. Staff anticipates and responds to questions, providing integrated information and explaining related paperwork, processes, and deadlines as well as the interrelation of actions and the potential outcomes. Students are then referred to the appropriate content specialists to focus on specific counseling and advising needs (e.g., career, academic, admissions, transfer, financial aid). In this way, the cross-trained staff serve students by providing them with options—not just process-related information but the potential outcomes and interrelations of those options. Beyond dispensing information, the content specialists are able to focus on helping students explore how each option relates to his or her own individual situation, planning, and decision making.

This two-tiered model, with fully cross-trained frontline staff, provides a reliable, knowledgeable, human resource pool that is available in whichever content area a need arises. This benefits students by ensuring we can efficiently meet their needs during peak and nonpeak periods. Knowledgeable, cross-trained staff can refer students to content specialists for schedule development and educational planning, for example. They can also help students through processes such as completing admission paperwork, accessing program requirements and transfer information, reviewing policies, tracking financial aid requirements and status, completing registration, and making fee payments—all in one location and typically in one visit. Providing students with this information before they visit content specialists enables the specialists to use their time with students efficiently. They can provide counseling, goal setting, and planning rather than review instructions such as how to read the credit class schedule or submit a form over the Web.

Innovations

By using resource assistants as generalists, the Success Center has been transformed into a center for information. Checkpoints were the traditional method of handling the mass of students for registration, admission, and advising. Through our experimentation, we tried various levels of service until we finally flattened the process and broadened the knowledge base of the resource assistants to engage students in a conversation about themselves. At that point, we made the decision to expand the role of the resource assistants into generalists.

We believe the innovation in our process is the early identification of student needs using a student development concept. This "triage" allows a resource assistant to diagnose and treat the initial needs of students. Once this is done, the student is ready to move onto a specialist (if needed) for further information dissemination or action planning. The specialist goes deeper into the content needs of the students in an office setting where privacy is maintained.

This inventive approach has reduced the number of redundant visits by students because, in their first visit, they receive much more complete answers to their questions from generalists with extensive knowledge of our student service areas. Contrast this with the traditional method, where students had to visit multiple offices and stand in multiple lines to receive specific bits of information.

Another positive result is the education that occurs between the student and resource assistants, which begins creating independent information users. Bringing together the student and the resource assistant, with the aid of electronic resources, produces highly effective visits and greatly reduces lines. Students are not only more prepared, they are more knowledgeable about how to access their own information when they want it. In fact,

in the fall 2001 semester start-up period (applications, assessments, registrations), lines disappeared almost entirely. Students get the information they need quickly and efficiently and learn to review their records online, thus reducing the need for additional visits to the Success Center.

Our students have traditionally enrolled late in large numbers and stay fewer semesters than students at a university. Even with the obvious differences in enrollment patterns and percentages of continuing students, the concept remains relevant to the university setting. Success Centers bring services and information into one area; students get service quickly and efficiently and are taught how to help themselves. Centralizing initial services reinforces the freshman year concept of enhanced knowledge with a central theme. Consolidation of staff delivering consistent information addresses the early needs of students, allowing colleges and/or universities to shift personnel into other functional areas. Educating the students early pays huge dividends the longer the student attends the institution. Decision making is still left to the various departments or colleges; information dissemination is centralized to allow the individual departments to perform their specific functions.

Evaluation

Since inception and full utilization of the Success Center, we have performed several evaluations to assess the concept and the access to information, and to determine how students have adjusted their patterns of behavior. The following empirical data shows how the Success Center and related services have fared:

- On-campus registration has decreased from 45 percent of all registration in 1999 to 39 percent in 2000. Early (rather than late) registration has increased from 39 percent in 1999 to 45 percent in 2000.
- Web registration increased from 27 percent in 1999 to 57 percent in 2000, telephone registration has decreased from 31 percent in 1999 to 13 percent in 2000, and in-person registration has decreased from 43 percent in 1999 to 30 percent in 2000.
- A satisfaction survey of students conducted in Composition I classes reveal overall satisfaction of student services over 3.8 on a 5-point Likert scale (the prior year had a 3.4 overall satisfaction).

Retention studies must be developed to determine the lasting effect of this developmental approach to student services. Answering questions about personal contact, access to information, and thoroughness of academic planning all must be considered as we go forward with this new approach to engaging students.

Use of the Success Center clearly has changed the pattern of access to services by students. They are completing their enrollment process earlier, they are getting their academic plans in order sooner, and they are accessing their information electronically. Two years ago this concept was a proposal, today it is a reality that has been embraced by staff, faculty, and, most importantly, our students. To paraphrase one faculty member and one student, respectively: "We know we can send our students to one place to solve their issues," and "All I know is if I go to the Success Center they know what to do." These are examples of the qualitative data received as we survey students about the Success Center. Quantitative methods of evaluation are in the

Johnson County Community College

Johnson County Community College was founded in 1968–69 to serve the residents of Johnson County, Kansas, and moved to its present 234-acre campus in 1972. The original campus had six buildings; today, there are 17 major buildings. The newest are the Police Academy; an instructional greenhouse; and the Student Center, a state of-the art facility containing all student support services.

With more than 34,000 students enrolled in credit and continuing education classes each semester, JCCC is the state's third-largest institution of higher education and the largest of its 19 community colleges.

JCCC offers a full range of undergraduate credit courses that form the first two years of most college curricula as well as more than 50 one- and two-year career degree and certificate programs that prepare students to enter the job market in high employment fields.

In addition, JCCC is a founding and current member of the League for Innovation in the Community College and is a national leader in student service delivery and innovative initiatives. JCCC is accredited by the North Central Association Commission on Accreditation and School Improvement.

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planning stages to build data sets for retention studies. What has mattered from the outset is how we can make things better for students and how we can handle more students with the same number of employees without compromising quality service. Based on our satisfaction surveys, we are accomplishing our goals during positive enrollment growth.

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8

James Madison University

Layers of Learning: Planning and Promoting Performance Improvement and Action Learning

Diane Foucar-Szocki, Laurie Harris, Rick Larson, and Randy Mitchell

Overview

James Madison University is currently developing a campuswide effort to coordinate programs and services based on cohesive educational goals that are articulated in the university's 21st Century Centennial Characteristics. This set of 29 comprehensive qualities used in university planning describes how the university will be characterized upon its centennial in 2008 (see Figure 8.1). The statements either confirm how JMU is currently known or challenge the institution to exceed the parameters by which it is currently defined.

The student success model at JMU is based on the following:

- *Learning*: providing programs and services that help students take responsibility for making educational transitions into, through, and out of the university
- *Service*: making services available and accessible to students and removing some of the obstacles that prevent students from accomplishing their educational goals
- *Convenience*: integrating functions in central locations so students can make the best possible use of their time on campus
- *Options*: providing opportunities for the student to conduct transactions with the university in the manner best suited to that student
- *Good advice*: providing students with appropriate information, directions, and suggestions based on their educational needs

Diane Foucar-Szocki *is associate professor and coordinator of the Adult Education/Human Resource Development program at James Madison University and director of Virginia's Workforce Improvement Network. She consults on issues of professional development and is author of several articles and reports on group learning, staff development, and adult literacy.*

Laurie Harris *served this project as a graduate student in Adult Education/Human Resource Development at JMU, concentrating on performance improvement consultation with an emphasis in customer service, competency development, and adult education. She is currently working as a trainer/team specialist with E*TRADE Bank.*

Rick Larson *is the associate vice president for student life at JMU, responsible for residence life, multicultural/international student services, university centers, recreation, and judicial affairs. He earned a bachelor of individualized study from JMU in human resource development and is currently pursuing a master's in Adult Education/Human Resource Development.*

Randy Mitchell, *associate vice president for student success programs at JMU, is responsible for admissions, academic and career advising, leadership, disability services, first-year programs, and financial aid. He has coordinated numerous renovation and innovation projects and serves as an assistant professor of psychology. Randy has published and presented extensively in the student services arena.*

Mission Statement: We are committed to preparing students to be enlightened and educated citizens who will lead productive and meaningful lives.

Defining Characteristics: As we seek to define how JMU will be characterized upon its centennial in 2008, the following defining characteristics will be used to guide us toward this ultimate achievement. These statements either confirm JMU as we currently know it or challenge us to exceed the parameters by which we are currently defined.

1. The university will strategically select innovative and new academic programs for development and implementation.
2. The university will serve primarily full-time residential students but will increase programs that fulfill non-degree and competency certification requirements as a complement to the traditional academic programs and the bachelor's degree.
3. The university will offer graduate programs of distinction.
4. The university will provide a challenging and supportive environment with a heightened sense of intellectual stimulation.
5. The university's strength is in its people and, thus, we will invest in both professional development and instructional innovation and excellence.
6. The university will be a diverse community whose members share a common JMU experience.
7. The university will serve our state and the region but through its people, programs, and accomplishments, will be recognized on a national basis.
8. Admission to the university will remain selective with the ratio between applications and enrolled students reaching 6:1.
9. The university will develop diverse funding sources to achieve initiatives campuswide.
10. The university will develop broad-based financial support and involvement among alumni, parents, and friends.
11. The university, to enhance and support its programs, will expand its strategic alliances with external partners.
12. The university will follow a planning process that emphasizes accountability and ties resource allocation and initiatives to the concepts of institutional effectiveness.
13. The university, through its planning process, will clearly align aspirations, wills, and resources to achieve its goals.
14. The university will involve the entire campus community in a well-defined, consistently used, and commonly understood process for planning and decision making.
15. The university will provide student transcripts that reflect course grades, grade point averages, institutional certification of competencies, assessment results, and participation in experiential learning programs.
16. The university will offer a wide variety of quality liberal arts and professional programs.
17. The university's core curriculum will provide a strong foundation in the liberal arts and will establish optimum competencies in written and oral communications, critical thinking, and information technologies as basic graduation requirements.
18. The university will complement its residentially based academic programs with distance education offerings for select audiences.
19. The university will provide technologies and laboratories that are widely accessible to the entire campus community.
20. The university will continue to be recognized as an efficient overachiever in its use of resources in the total educational program it offers.
21. The university will provide a high level of service to all members of the JMU community.
22. The university will continue to offer and develop programs and services with the student as its ultimate focus.
23. The university will provide students and student-athletes with a comprehensive and competitive intercollegiate athletics program.
24. The university's campus will be attractive, safe, and friendly.
25. The university, long characterized for its continuous enrollment growth, will stabilize residential enrollment.
26. The university's faculty will integrate scholarship, service, and teaching to enhance student learning.
27. The university will continue to focus on the total development of the student.
28. The university will challenge students to achieve beyond their expectations.
29. The university will develop and offer international experiences that enhance the global awareness of the student.

Institutional Characteristics: In 2008 James Madison University will celebrate its centennial anniversary. During that important milestone in the life of this institution, we will examine where we have been and the impact we have had on the many individuals who have participated in the JMU experience. By successfully achieving the 29 defining characteristics we will then be able to characterize the university in the following ways:

1. A Learning Culture of Academic Excellence
2. A Residential, Comprehensive, and Student-Centered Environment
3. A Connected and Diverse Campus Community
4. Outstanding, Involved Students Who Are Preparing for the Future
5. Faculty, Staff, and Administrators Who Are Leaders and Mentors

Figure 8.1 James Madison University Mission and Defining Characteristics

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- *Time:* saving time and making the best use of time for students and staff

To create the conditions conducive to student success at JMU, we are pursuing the following three strategies:

- *Place improvement:* changing facilities to make them more accessible, flexible, and integrated into the delivery of programs and services
- *Process improvement:* studying, mapping, and changing processes to make them more efficient and effective for all university constituents
- *Performance improvement:* integrating action learning ("working in small groups in order to take action on meaningful problems while seeking to learn from having taken this action" [Yorks, O'Neil, and Marsick 1999, p. 3]), student learning, performance improvement strategies, instructional systems design, and continuous improvement to advance the capacity of student success staff to assist students in making educational transitions and developing self-motivation and responsibility

While all three strategies are currently under way at JMU, and while there is a great deal of overlap among the three strategies, the focus of this chapter will be on the performance improvement projects. The project planners believe that changing organizational structure, improving process, and renovating facilities are necessary but insufficient methods for achieving higher levels of student satisfaction and retention. Performance improvement has the potential to transform student services dramatically, primarily through the identification and development of core competencies for student services staff. Figure 8.2 graphically captures the model that we will describe in this chapter.

Compelling Case for Change

All types of institutions are shaped by external challenges, and JMU is no exception. Among the challenges facing us are new demographic mixes of students and staff, changing labor markets that require new sets of skills and competencies, global competition through the Internet and other information technologies, higher expectations for service from customers, and accountability and productivity demands from the public (Mingle 1998; Fenske, Rund, and Contento 2000; Jackson 2000).

These challenges require student services personnel to learn new skills continually, acquire new knowledge, and become competent in providing service in a changing environment. The changing demographic mix requires greater attention to meeting the needs of diverse students and staff. The changing labor markets on and off campus require that staff acquire new skills and become more familiar with the skills students will need (e.g., information technology, multicultural competency, mass communications, and change management). Competition from alternative modes of training and education require that traditional educational institutions ensure that *credentialing* through the awarding of degrees and certificates adequately addresses *competency*, defined here as "skills, knowledge, and abilities described in behavioral terms that are coachable, observable, measurable, and critical to successful individual or organizational performance" (Lonabocker 2000, p.18).

To meet higher expectations for service from its many customers, JMU needed to raise the bar on service performance and evaluation. Finally, accountability and productivity became priorities for staff through best practices, benchmarking, process improvement, and performance improvement.

In response to the educational issues raised in *An American Imperative: Higher Expectations for Higher Education* (1993) and *The Student Learning Imperative: Implications for Student Affairs* (1996), JMU conceptualized its academic services and student services as integrated, collaborative, and seamless. To achieve this vision, the university created a Student Success Initiative with the following mission:

> To design, implement, coordinate and assess learning opportunities (programs and services) that help students complete seamless transitions into, through, and out of the institution; that develop the student's motivation to learn, engage in educationally purposeful activities, and assume self-responsibility; that are cohesive, supportive, and organized around common educational goals.

The result of this collaborative process of change was the establishment of three student success centers: a Service Center, a Learning Center, and a Welcome Center. The physical relocation of services began in

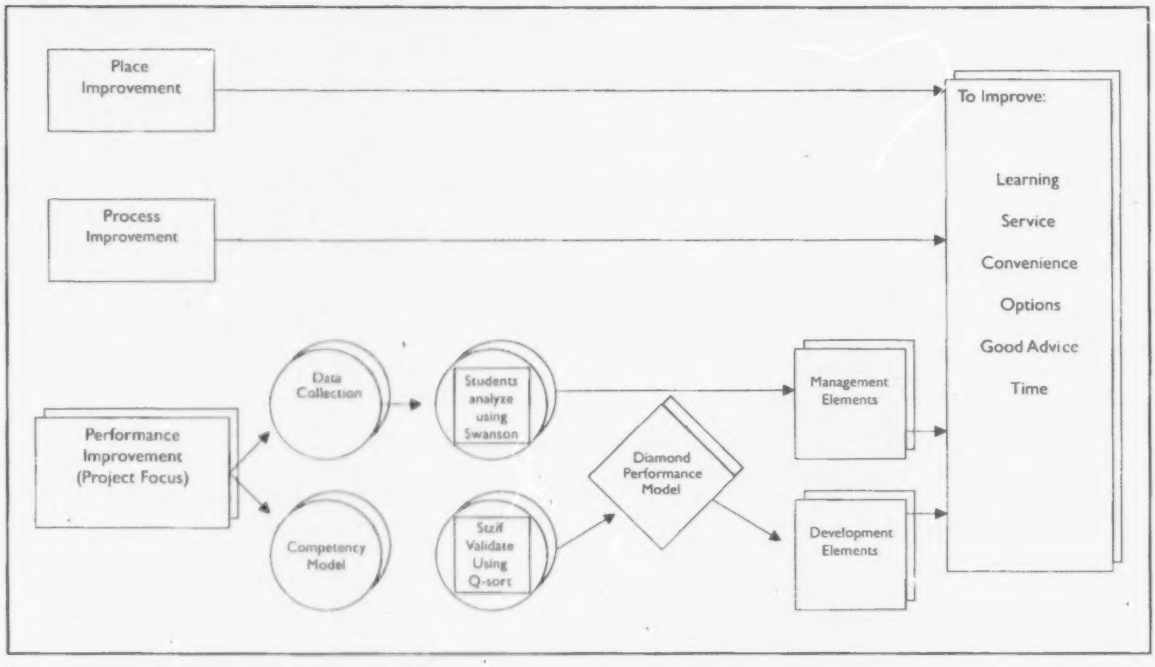

Figure 8.2 Performance Improvement Process

1998 (place improvement), with the initial focus on development of the Student Success Service Center in Warren Hall, a part of the university's student center. Departments that previously operated as functional silos, such as Registration Services, Financial Aid, Student Accounting, Card Services, and University Information, were charged with integrating their services, enhancing technological services, eliminating cross-campus runarounds, and providing one-stop shopping related to student services (process improvement). The Student Success Curriculum Development Committee (SSCDC) was formed to assist staff in understanding their new role in the student success program. In addition to representatives from the Divisions of Academic Affairs and Student Affairs, this committee included faculty and students from the Adult Education/Human Resource Development Program to facilitate instructional systems design, action learning, student learning, and continuous improvement (performance improvement).

A strong inducement for development of a Student Success Service Center at JMU was the positive results experienced by campuses such as the University of Delaware, Brigham Young University, Seton Hall University, Fordham University, and Salt Lake Community College. Site visits to these institutions provided personal observation of this approach to student service, reinforced by the data shared by several institutions in *Planning for Student Services: Best Practices for the 21st Century* (Beede and Burnett 1999).

Project Summary

Campus environment. JMU has established an intentional, integrated, experiential action learning framework that is yielding positive results for all involved. This research-based project seeks to articulate boundary-spanning employee competencies within the Student Success Service Center. The competency model and the participatory process of developing the model are the foundation for an ongoing system of development opportunities to equip employees to work successfully within student success. The ultimate purpose of the project is to assist the university in realizing its 21st Century Centennial Characteristics and in fulfilling its Core Performance Measures, which are annual statewide measures of institutional achievement (see Figure 8.3).

Action learning. The establishment of an intentional, integrated, experiential action learning framework has been successful in improving performance and enhancing

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Year Submitted	2000
Measure	1b. Progression Rate
Baseline	Fall 1994 to Fall 1995 72.5%
Target	Fall 1999 to Fall 2000 73.0%
Actual	Fall 1999 to Fall 2000 76.5%
New Target	Fall 2000 to Fall 2001 70.0%
Defining Characteristic	The university will challenge students to achieve beyond their expectations.
Measure	1c. Retention Rate
Baseline	Fall 1994 to Fall 1995 19.0%
Target	Fall 1999 to Fall 2000 17.0%
Actual	Fall 1999 to Fall 2000 14.0%
New Target	Fall 2000 to Fall 2001 16.0%
Defining Characteristic	The university will challenge students to achieve beyond their expectations.
Measure	3a. Employed in Program-Related Work
Baseline	1994 graduates 73%
Target	1996 graduates 85%
Actual	1996 graduates 88%
New Target	1998 graduates 85%
Defining Characteristic	The university will provide a challenging and supportive environment with a heightened sense of intellectual stimulation.
Measure	3b. Pursuing Further Study
Baseline	1994 graduates 24%
Target	1996 graduates 23%
Actual	1996 graduates 35%
New Target	1998 graduates 30%
Defining Characteristic	The university will provide a challenging and supportive environment with a heightened sense of intellectual stimulation.

Figure 8.3 James Madison University Core Performance Measures for Higher Education

innovation in the JMU Student Success Service Center. To understand the framework, it is important to know the two critical components—action learning and performance improvement—and how students, faculty, and staff worked together to accomplish results.

To accomplish action learning, JMU employed a structure that included a sponsor or client (student success programs), a strategic mandate or goal (to assist the university in realizing its 21st Century Centennial Characteristics and fulfilling Core Performance Measures), and a planned learning process with selected participants (undergraduate and graduate human resource development [HRD] students) who completed work by using a consulting team approach. This structure also included deliberate efforts to orient all participants in their role as learner, coaching by faculty and staff, data gathering, data analysis, implementation, presentation, and evaluation. Following orientation and development of the HRD student consulting team, a meeting was conducted with their clients, the associate vice president for student success and the SSCDC, to determine the project goal.

Performance improvement process. Once the vision, mission, and objective were established (see Figure 8.4), the team conducted a performance improvement analysis of the Warren Hall Student

Vision	Every member of the community realizes student success.
Mission	Develop a framework for the JMU community to know, believe in, and effectively implement student success principles, system, and service.
Objective	Develop a framework for employees to know, believe in, and effectively implement student success principles, system, and service.

Figure 8.4 Vision, Mission, and Objective: James Madison University Performance Improvement Process

Success Service Center. The performance improvement analysis process became a focus of the students' action learning experience. Performance improvement incorporates a series of steps, including workplace diagnosis and documentation, to provide a basis for improving organizational effectiveness and efficiency. A fairly standard performance improvement model was employed consisting of five phases: analysis, design, development, implementation, and evaluation (Rothwell and Kazanas 1998). Within the analysis phase, the focus was specified to five performance variables: mission/goals, processes, motivation, capacity, and expertise (Swanson 1996). During the process, both faculty and staff advised the students and formal reflection periods were facilitated. In developing the performance improvement process, significant emphasis was placed upon the need for a coherent and guided strategy, an understanding of the culture, the constitution of a culture supportive of performance improvement, action learning and student success, intentional learning, and involvement of stakeholders in the planning process.

Warren Neighborhood Association. The Warren Neighborhood Association, a group of supervisor-level staff from the various student success departments in Warren Hall, met monthly beginning in 1997 during the physical relocation of offices to discuss the continuing changes and offer input into the process. A representative from the neighborhood association was asked to serve on the SSCDC. After an introduction to the student consultant team and the needs assessment and performance analysis, the neighborhood association was asked to choose a contact person within each individual department to act as a liaison with the consultant team and as a vehicle for dissemination of information. It was hoped that through direct communication and relationship building, some of the stress and fears associated with the anticipated changes would be alleviated.

Analysis. The students completed their analyses by the end of the first semester of the project and presented recommendations to the client. The recommendations were categorized as "management elements" (non-instructional) and "developmental elements" (instructional). The client and his staff were responsible for accomplishing the management elements. The HRD consulting team was responsible for implementing the developmental elements. Because the recommendations were informed by data collected by the students, the client readily accepted them.

Competency model. With completion of the performance improvement study, the participatory development of a competency model for student success became the next action learning focus. During the study, it was learned that the employees understood the tasks to be accomplished in their jobs. However, job descriptions and other written documentation did not describe how to perform the tasks. They lacked competency descriptions. A competency can be thought of as the combination of attitudes, skills, and knowledge that produce intentional and desirable behaviors. A competency model is a set of specific behaviors that are directly related to the performance of a defined category of jobs, such as student services. The JMU Diamond Performance Model would be built to reflect the culture and mission of the university and would provide employees with cross-functional behavioral descriptions that correlate to their ability to perform their jobs effectively.

The consultants used an eclectic process to design the Diamond Performance Model. Because one of the main objectives of this performance improvement initiative was to improve customer service for students, a generic customer service competency model, titled SERVE, was selected as the framework for sorting the data collected during the needs assessment. Several other sources of information were used to inform the competency model, including critical incident interviews, a generic competency dictionary, and the Student Learning Imperative. The initial model facets, or competency clusters, included Service, Specific Knowledge, Support Knowledge, and Student Learning.

The Student Learning facet lacked both behavioral examples in the data and support in the competency literature. It is not clear how service providers can intentionally weave learning into one-time transactions with students. Thus, this competency description was developed by inferring behaviors from the Student Learning Imperative, combined with expert input learned during interviews with the client and through document analysis.

Furthermore, in the process of sorting the data, the element of teamwork emerged as a strong skill set for service providers. Although employees were not able to provide comprehensive behavioral examples of teamwork, it was frequently mentioned in interviews, exemplary employee surveys, and focus groups. Therefore, when preliminary information about the model development was presented to the client, they decided to add a fifth facet titled Teamwork. A generic competency dictionary and other literature on teams were consulted to define the concept more accurately and augment the behavioral indicators.

Validation and establishment of the reliability of the Diamond Performance Model was accomplished through focus groups, critical incidents, and a Q-sort workshop. Q-sort is a process that includes the compilation of feedback from employees so competencies (described as observable behavior, demonstrable skills, and feelings) can be established and listed in a hierarchical manner. The lists are then presented back to employees to be sorted and revised to make sure the competencies accurately reflect the various desirable levels of competence that can be attained. Through these various approaches, several behavioral descriptions were refined to alleviate confusion and duplication.

Finally, a Web-based self-assessment tool was created for employees to measure their level of competency. As the data from the self-assessment is processed, it is reordered and an individual report appears that sorts the answers into the competency areas so that employees can gauge their needs accordingly. The report can then be printed and saved for future comparison as employees gain additional knowledge and skills through training.

The model provides explicit performance standards for employees to measure their abilities on an ongoing basis. It provides a tool that encourages employees to become self-directed learners in order to meet desired levels of performance. This component represented the development of core competencies necessary for successful fulfillment of the goal. These core competencies were identified by the end of the second semester and were integrated into the developmental plan as the basis for what the student consulting team termed the "Diamond Performance Model™" (see Figure 8.5).

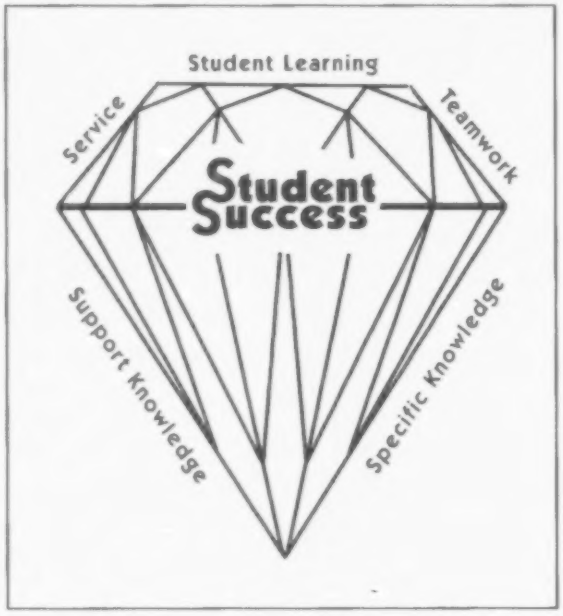

Figure 8.5 The James Madison University Diamond Performance Model

Instructional design. The student consulting team expanded as students graduated and others became prepared to continue the work. Subsequent students designed instruction based on developmental elements recommended in the performance improvement proposal. This work is anticipated to be ongoing.

The practices of instructional systems design, performance improvement, action learning, and competency modeling hold great promise for effecting real change in higher education. Universities with academic programs in human resource development and adult education offer natural opportunities to integrate authentic learning and institutional change. The performance analysis and improvement process introduced at JMU will be implemented in other areas of student success—the Learning Center and the Welcome Center—

and the greater university over the coming years, thus providing an ongoing consultative relationship between the HRD program and the university. The nature of the work, the convenience of the client location, the shared learning focus of the program, and the institution make this a dynamic learning partnership valuable to all involved (Foucar-Szocki et al. 2001).

Results. Evidence concerning the impact of changes made through the performance improvement process is still being collected. As is often the case with HRD interventions, some years are needed to know the full impact of the efforts (Phillips 1997). In the short term, this initiative has done the following:

- Enhanced the learning and development of HRD students. This was determined through student feedback at the end of the semester. It reinforces our view that authentic learning environments in which theories and practices are applied provide richer, more complex, situated learning—an enhancement over classroom-based learning that might or might not transfer to other settings.
- Improved student satisfaction with student services as measured by annual surveys.
- Increased administrative awareness of the HRD program and its capacity to provide in-house consultation at a fraction of the cost of a commensurate effort by external sources. This awareness is reflected in the increased enrollment in the HRD program, the growing number of requests to present program results to administrative and academic units on campus, and increased requests for services of HRD students and faculty on campus. Standard fees from professional consultants (e.g., IBM, Accenture) far exceed the cost of conducting consulting as an experiential aspect of an academic program such as HRD.
- Introduced a process model for implementation in additional areas of the university.

Lessons Learned: What We Would Do Again

The performance improvement process at JMU will be conducted for all three student success centers as well as additional units in other parts of the university. Subsequently, it was important for the project managers to identify key considerations for success. Our lessons learned focus on establishing six key considerations in future projects: collaboration, the value of generalist knowledge, a systems approach, a consulting approach, layers of learning, and customization.

Collaboration. Working together as an integrated, cross-divisional team concentrating on learning at all levels (students, staff, faculty, and administration) was central to the JMU approach and is being retained in ongoing efforts with all three student success centers. Focusing on learning for improvement enables experimentation with and engagement in performance interventions within student success while teaching students in a highly authentic way.

The collaborative learning spirit was conveyed through formal and informal interaction by all involved. We continue to meet as a core learning group, building on the insights of one another to further our effectiveness in this work, the larger student success project, and elsewhere in our professional lives. The assigned students meet weekly throughout the semester; various staff and administrative groupings meet at least monthly; e-mail is used to extend and clarify communication. The Warren Neighborhood Association became an anchor for ongoing development and learning; diamond performance is now one of its priorities.

An intentional, integrated, experiential action learning approach is intended to benefit all parties involved. Everyone who is involved must have responsibilities that contribute in a meaningful way. Consequently, every participant must be equally involved regardless of his or her position in the organization.

The value of generalist knowledge. A high value must be placed on the development of generalist knowledge, with staff assigned to the Student Success Service Center. Employees are often confronted with inquiries crossing departmental boundaries. In an effort to prevent customers from having to move from place to place and speak to more than one service provider, staff had to learn to answer a broad array of questions. Possession of this general knowledge became much more valuable to everyone because it did allow for almost immediate improved customer service.

Initially, the employees thought that becoming generalists implied that they had to know how to perform everyone else's duties in addition to their own. In reality, becoming a generalist simply meant enhancing current knowledge with certain, general support knowledge that would allow for greater support for the

customer. Awareness and clarification of definitions for the generalist and specialist roles were essential to avoid and reduce anxiety.

Systems approach. This type of work must be engaged from a systems perspective. Performance improvement specialists have accepted the view that organizations are complex, open systems. Systems-oriented analysts assume that their job is to design and create high-performing organizations. In such a system, all the parts or subsystems work together to achieve the purpose of the whole organization. This is certainly true in the complex world of student services (Swanson 1996).

A comprehensive needs analysis must be conducted to determine which variables contribute most to success and which variables need improvement. This analysis results in a performance improvement proposal that serves as the departure point for action. The proposal brings all involved parties into congruence and allows clear choices for action in management and human resource development, clearly determining responsibilities.

The focus of JMU's human resource development efforts was a context-specific competency model established through a highly reflective, participatory process led by students with faculty support. This process was fundamental in clarifying the nature of student success and what it means to be effective within the new context while performing traditional (e.g., cashier) work functions. The Diamond Performance Model is the centerpiece for performance management in the service center. Creating the model is both a product and a process worth keeping and repeating in a new setting.

The consulting approach. The prescription outlined in the performance improvement proposal was informed by diagnosis conducted with the input of staff and other stakeholders in the Student Success Service Center. This approach allowed the student consulting team to remind their audience (some of whom were skeptical and resistant to change) that the team simply used data provided by the very employees to whom they were speaking. Facts were stated objectively and the various stakeholders generated the only opinions that were shared. This focus on the diagnostic work allowed the student success employees to understand that the consulting team was objective and honest in their reporting and recommendations. As a result, trust in the students and the process they used was enhanced.

It is also important that the client or leadership of the organization remain open minded regarding the consulting approach. There must be high trust between client and consultants; leaders must be open, exploratory, and trusting.

Layers of learning. By beginning the steering committee's work with readings about action learning, performance improvement, and learning at work, the group shared and created expertise. Learning was not left exclusively to the student consultants. In fact, by modeling and reinforcing our shared roles and responsibilities as learners within this effort, regardless of position, target employees were more open to a learning stance for themselves. This stance mollified the negative aspects of change, making it much more palatable for the employees. In addition, faculty and staff gained insight about their own work, one another's work and the work of the university by approaching the endeavor from a learning stance.

Reflection and coaching are critical aspects of the action learning framework employed at JMU. Members of the SSCDC and faculty were used to coach and facilitate reflection periods. There were simply not enough faculty members involved to help assure that the critical reflection took place. The primary client and members of the SSCDC were expected to facilitate student learning through reflection and coaching. During the process, some team members noticed that even though the employees who worked in the Student Success Service Center had not yet received any formal training, learning was taking place. Staff members participated in the Q-sort process, which is designed to validate competencies that were established. Through their exposure to gathered data and involvement in the process, it became clear that staff learned about expectations and skills necessary to complete the work of student success effectively. This learning had a direct impact on how staff members dealt with customers and each other.

Customization. Instruction was designed based on data gathered and analyzed. The data that was peculiar to the JMU Student Success Service Center informed the design and development of the training. Therefore, the subsequently developed training was customized for application to that particular group of participants. This method makes it less likely that instruction developed for a specific set of learners can be implemented with a different group of learners on the same campus.

Lessons Learned: What We Would Not Do Again

During the competency model building process, employees were asked to identify exemplary employees from among their ranks. Employees misunderstood and received this request with suspicion. Clarification of purposes is essential, and the use of a different term when working with employees to identify those among them who exhibit the best performance in the new environment is recommended.

JMU embarked on this process with minimal financial commitment for performance improvement. While support has been forthcoming, it is not commensurate with the actual and potential contributions expected from our efforts. Having an authentic environment for the HRD students to learn was the primary objective of the faculty member. While this has been achieved, it has been at a significant cost. In the future, investment proportionate to the results achieved must be articulated and understood at the outset.

Planning Considerations

The stakeholders of this change initiative are the top-level administration; employees of the Service, Learning, and Welcome Centers; faculty; and students. The formation of the SSCDC, a pivotal strategy, brought together this cross-section of stakeholders as a guiding body for this initiative and provided the structure for collecting multiple perspectives. Faculty provided articles about action learning and informal learning to help the committee understand the role learning would have in this change effort. The SSCDC placed significant emphasis upon the need (1) for coherent and guided strategy; (2) for an understanding of the culture; (3) to build a culture that supported performance improvement, action learning, and student success; (4) to ensure that learning would be intentional; and (5) for stakeholders to be involved in the planning process. The Swanson Performance Analysis model provided the structure for analyzing the needs on the organizational, process, and individual levels to obtain a clear diagnosis of the performance issues (Swanson 1996). Strategies for improvement, therefore, are based specifically on the diagnosis. The allotment of time, energy, and effort for this stage of visioning and assessment proved to be well spent.

Time to reflect upon learning must also be carved out of busy schedules in order to continue the development of the university as an organic, learning organization that is responsive to internal and external change. Students, employees, and faculty have learned from each other by creating a culture of respect, trust, and equality. The students chosen for participation with the SSCDC were hand picked based upon their increasing knowledge in instructional systems design and competency modeling and their motivation and capacity to participate fully. This factor was critical, and transforming this process using established classes has been challenging. Faculty must be prepared for their role in this consultative teaching approach before they become involved because it requires a greater commitment of time, coordination, and creativity (Foucar-Szocki et al. 2001).

As the university moves forward to develop learning opportunities, involvement by all stakeholders continues in an action-learning-oriented fashion. The neighborhood association has assumed the role played by the SSCDC for the Warren Hall services center. Although it is possible to build upon the assessment process in Warren Hall, both the learning and the implementation processes will develop differently for each new area of the university as each has its own culture.

JMU has attempted to minimize the impacts of employee stress and resistance to change. The institution never considered eliminating positions, organizational restructuring, or requiring staff to reapply to maintain their status. Without significant reorganization, staff members weren't faced with loss of power, control, or competence. Rather, they were actively involved in the identification of competencies needed for success. JMU made certain that all levels of staff were engaged in the change process. The neighborhood association became an active conduit of information and involvement. Periodic training programs and ongoing contact with the HRD students gave staff continual exposure to a process that reinforced their strengths and provided alternatives for their weaknesses.

Critical Success Factors

The Probability of the Adoption of Change Model developed by Creamer and Creamer (1990) was a guide for and a gauge of JMU's progress throughout this project.

As identified in the model, the following factors were critical to our success:

- *Circumstances.* There was a widely felt need for the change, the environment was supportive of the change, and influential people approved of the change. Additionally, the project afforded an excellent opportunity for students in the university's HRD program to have an experiential learning component.
- *Value compatibility.* The underlying values of performance improvement and action learning were consistent with the culture of the institution. Additionally, trust and camaraderie were amplified as critical values.
- *Idea comprehensibility.* The idea of performance improvement was relatively clear to all constituents.
- *Practicality.* Though fiscal and human resources were limited, faculty, staff, and student expertise and talent made the project feasible.
- *Top-level support.* The current and former presidents, the vice presidents, the college deans, and the Board of Visitors all expressed support and enthusiasm for the project.
- *Leadership.* A core committee of faculty, staff, and students (the SSCDC) provided leadership throughout the project.
- *Championship.* One person (the associate vice president for student success programs) was identified and given the authority and responsibility to execute the project.
- *Advantage probability.* The benefits of the project were continually articulated to those whose jobs were most directly affected; of greater importance, these individuals actively participated in the process.
- *Strategies.* A collaborative effort was exercised across three divisions of the university (student affairs, academic affairs, and administration and finance).

Benefits to students. As a result of this project, students are receiving improved service as identified in the Diamond Performance Model™. They are receiving enhanced advising concerning registration, financial aid, and student accounts and report spending less time completing various registration and financial processes.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	○
▪ Cross-functional teams	●
▪ Measurable outcomes	○
Web Portal	◉
▪ Personalized	◉
▪ Customized	◉
▪ Community oriented	◉
▪ Process oriented	◉
Service Support Center (telephone/e-mail)	◉
Customer Relationship Management (CRM)	◉
Document Management	●
Back Office Process Redesign	●
Year Recognized	2001

● *In production*
○ *Implementing*
◉ *Planning*
⊙ *Designing*
◉ *Not intended*

The undergraduate students in the HRD 380 class learned and applied new skills and knowledge related to instructional systems design and competency-based adult learning. Additionally, these students developed "W=EU2: Balancing the Equation for Success"—a learning experience designed to improve employee empathy for the students and student empathy for employees. Students developed the formula to indicate that success in Warren (W) required empathy (E) and understanding (U) by both employees and students (2). The session was offered to employees four times during spring 2001 semester and conducted as a HRD-sanctioned training session delivered by the students.

These students reported an increased understanding and respect for the university and its employees. By working hand in hand with the institution to solve problems encountered daily by staff, the HRD students gained increased knowledge of university operations and experienced how their own contributions made a

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difference. Ultimately, through the students' efforts to improve student success, they actually experienced student success. The layers of learning and contribution continue.

Graduate students were afforded an authentic environment for learning and application of human resource development tools. The leadership opportunities were significantly more visible and challenging than those often found in a traditional master's program offering. This approach provided significant real-world experience that translated into more than entry-level employment opportunities after graduation.

The Diamond Performance Model™ has created a greater understanding by staff of their importance to the university, resulting in more congenial attitudes for student customers, improved performance, and measurable gains in student satisfaction in student service (a 5 percent increase, as reflected on the annual Continuing Student Survey conducted by Institutional Research).

Benefits to staff. Because of JMU'S setting in a small town with a limited employee pool, staff tend to be long-term employees, some the daughters or sons of former employees. Its culture places a significant value on its people. As a result, the university was not interested in a staff overhaul or a disruptive reorganization process. There were two primary benefits from this process.

- *Teamwork.* With a heightened sense of community and "neighborhood" in their work settings, staff members have developed a value-added context of their specialist and generalist contributions to the university. Subsequently, their perspective of the project changed over time from burden to opportunity. Staff members have learned what it means to be a student success employee and what it means to function as a cross-functional team in the new service center in Warren Hall; they've also come to understand that teamwork has less to do with sharing an office and more to do with sharing a vision.
- *Ownership.* Staff participation in development of the performance model, through interviews, focus groups, surveys, workshops, and other interventions, created ownership of the model upon which development would occur. In fact, development of team building and support knowledge occurred simultaneously during the Q-sort workshop. The process established employee control over their own performance built upon behaviorally based standards identified by the group. Staff members now understand the reasons for training and can seize opportunities to self-direct learning based upon the model. Staff gained insight about their own work, one another's work, and the work of their university by approaching the endeavor from a learning stance in which greater risk can be taken.

Benefits to the institution. As a result of the Diamond Performance Model™ development process, the university now has a set of competencies related to student service center operations and functions; these competencies will be used to create interventions for staff development, factor into staff evaluation for merit increases, and serve as a basis for hiring considerations. The process used to improve performance in the Student Success Service Center will also be used in similar projects with the Student Success Learning Center and the Student Success Welcome Center. The university's Human Resources (employee relations) Department is monitoring the performance improvement process for potential use in other areas of the university. Additionally, the university uses its student success philosophy as a key element in recruiting prospective students. As a result of this process, members of the SSCDC have gained valuable insight into the variables that affect performance and methods for isolating root causes.

The greatest benefit to the institution might be reflected in the inspiration statement created by the Warren Neighborhood Association, distinguishing between customer service and student success (see Figure 8.6). This document is evidence of the evolution of a shared vision for student success and, perhaps more than any other, illustrates the change that has come about within the university as a result of the diamond performance process.

Conclusions and Recommendations

While streamlined processes, accessible facilities, and student-friendly technology are fundamental to success, the most significant transformation in student services is the result of improved performance. JMU's model adds a dynamic dimension to the Innovations in Student Services program that, with customization, can be used

in numerous other institutional settings. Four primary recommendations emerge from this process.

Leadership for learning. To achieve student success through performance improvement, it is essential to create a learning environment in which multiple goals are met through shared efforts. This implies making change management a truly learning process in which all constituents and stakeholders acknowledge and advocate the power of their own learning to make a difference. The learning provided through this work is layered for all constituents, providing opportunities for complex, realistic problem solving and enabling them to apply newly developed skills and abilities.

Students develop and learn to their fullest capacity while working at the highest levels of cognitive functioning. As evidenced through this project and its evaluation, students began to see the university from new perspectives, reporting feelings of a greater sense of ownership, belonging, and responsibility related to the trust and responsibility placed on them through this work. They recognized that learning and the application of learning is active, experiential, and significant, not passive, theoretical, and arbitrary. Most of the students involved in this process lost sight of grades, focusing instead on solving the problem at hand and working as part of the student success team to create an effective, efficient, and friendly environment. They saw the relationship of the "adults" of the university and themselves in new and powerful ways: perspectives were transformed, motivation for learning was enhanced, and relationships were built. None of this learning could have been achieved through classroom-based, teacher-directed work, regardless of its level of application, evaluation, or synthesis. It is the act of doing something real with *real consequences* in a familiar and understood context that allows for this complex, integrated learning.

Faculty members were challenged to create meaningful, responsive learning dialogues that examined applicable knowledge, skills, and abilities in critical ways. Staff members came to understand and examine their work, their relationships, and their contribution to the university in new and dynamic ways. Managers continued to develop their management and leadership skills. Administrators strove for synergy supported by appropriate places, processes, and performance.

Provide a step in the process ... That's customer service.
Teach the steps in the process ... *That's student success!*
Resolve a student's problem ... That's customer service.
Teach the student to prevent the problem ... *That's student success!*
Answer the question ... That's customer service.
Determine the question to be complete, then answer ... *That's student success!*
Direct students where they want to go ... That's customer service.
Share how they can organize their time effectively ... *That's student success!*
Forgive a student for making a mistake ... That's customer service.
Advise how *not* to make the same mistake twice ... *That's student success!*
Apply policy and procedure ... That's management.
Offer options with outcomes ... *That's student success!*
Enforce a rule ... That's management.
Share the purpose ... *That's student success!*
Give an opinion ... That's customer service.
Give advice ... *That's student success!*
Care about the student ... That's customer service.
Care about the student's future ... *That's student success!*
Be a part of a team ... That's customer service.
Work as a part of a team ... *That's student success!*
Do unto them as you would have them do unto you ... That's customer service.
Exceed your own expectations ... *That's student success!*
Acknowledge a job well done ... That's recognition.
Appreciate the grunt work behind it ... *That's student success!*
Meet others half way ... That's cooperation.
Stretch to make the connection ... *That's student success!*
Go the extra mile ... That's customer service.
Find an effective shortcut ... *That's student success!*
Give information ... That's communication.
Target the right information ... *That's student success!*
Cross your t's and dot your i's ... That's important.
Lift your head and open your eyes ... *That's student success!*
Show your teeth and smile with your eyes ... *That's student success!*
This mess is no laughing matter ... That's business.
Laughing while you clean it up ... *That's student success!*
Having a good attitude ... That's essential.
Putting your attitude in action ... *That's student success!*
Be the student.

Figure 8.6 Warren Neighborhood Student Success Mission/Inspiration

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This type of learning environment requires an ongoing commitment to planning and communication. Performance improvement must be championed, invested in, and structurally supported. Coordinating committees or neighborhood associations, including representatives from across the building or center, are essential at the outset of a project. A cross-functional, multilevel coordinating committee of stakeholders should meet quarterly to share accomplishments, learning, and plans; this will assist in building the desired synergy.

Employees and their work must remain the focus of performance improvement, with a commitment to ensuring employee ownership of the process and its products. Learning and development of advanced skills for managers is important and should be pursued through both formal and informal action and traditional learning strategies.

Maintaining focus. It is essential to have a clear objective that answers the question, "Why are we doing this?" The study frequently uncovered information that was important but not directly related to the project's objective. Such information needed to be appropriately managed without becoming a distraction. Further, it is important to know if desired results were attained; clear objectives facilitate clear assessment.

Synergistic work results from maintaining focus from multiple perspectives. This project met the primary needs of an academic program, an administrative initiative, a service center, and two divisions of the university. These varying needs were kept in the forefront of discussion throughout the project. As the work evolved, we created a larger shared focus, the Diamond Performance Model™, while also addressing individual needs. JMU now focuses collectively on developing and advancing Diamond Performance while continuing to work, learn, and improve in the primary roles of student, faculty member, manager, administrator, cashier, registrar, and others.

Institutionalization. Costly renovation and construction projects are successful if accompanied by significant changes in staff performance. Unfortunately, the tendency in higher education is to invest significant funds on building modifications and precious little on the development of the human capital. Employees are often thrust into new working environments and relationships without the benefits of training and other interventions designed for their success in the new environment. While the needs of service users are considered in planning, the needs of service providers are frequently left to chance. For performance improvement and action learning to continue into the future, the process must become institutionalized; mechanisms must be initiated that will achieve desired results.

Levels of commitment and expertise by the students, faculty and staff involved in a student service initiative affect the progress of the project. For example, students working in a consulting capacity such as that described in the JMU program bring a fresh perspective, relate well to the student customer, and represent little direct operational cost. However, students also work in semester intervals and have a tendency to move on to other assignments as well.

To maintain continuity and allow for investment in the development of staff, we recommend the creation of a performance specialist position to focus on performance improvement. The performance specialist would identify and develop performance improvement paraprofessionals in each subunit. This individual would serve as champion (see "Critical Success Factors," above) and foster a spirit of continuous improvement while also teaching in the HRD or other appropriate academic program. Working with the neighborhood association, the coordinating committee, students, and other key stakeholders, the performance specialist would assure continuity and exemplify a method of institutionalizing the work at a fraction of the cost of the physical renovations. The performance specialist position as defined here spans three areas of the university: student affairs, academic affairs, and human resources. Where this position resides and how it is managed presents significant opportunities for breaking down institutional divisions and permitting the development of new organizational paradigms and constructs.

Collaboration and commitment. With the complexity of the contemporary college or university comes the need to recognize shared purpose and to value everyone's contribution toward that purpose. Recognition of shared purpose is embodied in JMU'S motto—"All Together One"™ —encouraging greater collaboration and respect for the significant contributions made by so many to achieve the institution's mission and goals. Successful collaboration requires leaders in key areas of the university to work together in new and purposeful ways. This working

together must be valued, supported, and given meaningful recognition to encourage others to collaborate in similar ways. From these shared efforts may come new ways of organizing and managing work.

Shared purpose requires the demonstration of authentic commitment to the people engaged in collaborative efforts. This commitment can best be achieved through open communication and encouragement of active participation by all stakeholders, the development of an ethos of knowledge and support, and an institution-wide sharing of critical support knowledge.

- *Open communication.* The collaborative approach requires a commitment to open communication. For communication to be effective, it must be timely, two-way, continuous, and reliable. There should be no mysteries involved with either the process itself or the potential outcomes. Commitments should be made to employees to diminish fear and uncertainty, as appropriate to the circumstances. These commitments could come in the form of statements such as, "No employee will be terminated as a result of this process," or "If service hours are changed, you might have to work some evening hours or on weekends." The institution should never make commitments it is unwilling or unable to support.
- *Active participation.* The collaborative approach requires a commitment to active participation. The process must be inclusive and welcoming. Employees are more likely to accept change when they are encouraged to provide input. By allowing employees to participate in a Q-sort competency validation process, JMU obtained more accurate information. Employees were invited to participate in all data-gathering methods and give input on conclusions drawn. By implementing many of their suggestions, employees believed that their input was valued.
- *Knowledge sharing.* The collaborative approach requires a commitment to an institution-wide sharing of critical support knowledge. The inherent complexity of a college or university necessitates sharing general support knowledge across departmental and divisional boundaries. Given current technology, the creation of a readily accessible, easy-to-update, central information repository is now practical and necessary. The use of a performance model such as the one JMU adopted can help foster the proliferation of support knowledge across the campus. The model must be tied to competence and allow staff to measure their own progress. Self-evaluation is viewed as credible and enhances employee self-esteem by allowing staff to gain control of their future development. Greater collaboration that helps break down institutional divisions and permits the development of new organizational patterns will be the result of this sharing of knowledge.
- *Knowledge and support.* Finally, the collaborative approach requires a commitment to the development of an ethos of knowledge and support. Administrators must show respect and appreciation for the knowledge possessed and the knowledge needed by employees. Recognition should be provided for employees who have acquired new knowledge, skills, and abilities.

James Madison University

"We are committed to preparing students to be educated and enlightened citizens who will lead productive and meaningful lives." With that mission, James Madison University focuses on the success of its 15,000 students. Located in the center of the scenic and historic Shenandoah Valley, JMU is a public, comprehensive university. Faculty and students at JMU share an innovative curriculum, a vibrant campus life, and an education that offers students opportunities to apply what they learn.

The Virginia General Assembly established the university in 1908 as the State Normal and Industrial School for Women at Harrisonburg. Renamed the State Teachers College at Harrisonburg in 1924 and Madison College in1938 in honor of the fourth president of the United States, the university became James Madison University in 1977.

The university offers bachelor's, master's, and doctoral degrees, but its primary emphasis is on undergraduate students. JMU provides a total education with a broad range of the liberal arts as its foundation and an extensive variety of professional and pre-professional programs, augmented by a multitude of learning experiences outside the classroom. The quality of the JMU experience has been recognized repeatedly in many national publications.

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Where possible, resources of people, materials, funding, and time should be allocated to facilitate learning. Administrators must be sensitive and responsive to the changing learning needs of employees. Continuous open discussion and the systematization of individual development and training plans for all employees help to create the desired culture of learning. When expected results are not achieved, the system and its processes should be initially examined for potential improvement, rather than simply assuming that the employees are at fault. The increasingly important role of the generalist should be held in high esteem. Above all else, the institution should care genuinely for its people.

Changing organizational structure alone does not improve performance, but improving performance changes the organization. That is the essence of the innovation process at JMU; combining an integrated approach to staff performance improvement in the university's student success centers with an action learning approach for students in HRD. The Diamond Performance Model™ can be a precious stepping-stone in JMU's realizing its motto of truly becoming "All Together One."™

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Part 3

Maintaining Strategic Focus

9

Tufts University

Student Service Standards: Valuing Contact

Kristine E. Dillon

Overview

If students are the focus, why aren't more colleges and universities organized to make informed and personalized contact with students a priority? American higher education typically has internal organizational structures that, by their natures, make for very different student interactions across departments. Whether in large universities or small colleges, administrative organizations evolved over the past 30 years to result in a divide between staff. The separation typically exists between staff who provide educationally relevant services and programs (e.g., student life, career planning, residential programs, health education, advising) and staff who manage institutional business transactions with students and families (e.g., bursar, financial aid, registration).

This simplistic observation clearly does not apply in every case, but its frequency of occurrence makes for ironic impacts on students and their parents. If the institution is a small college, it often has a cottage industry of student service offices, many of which operate in relative independence of one another. If it is a large university, the separation among service and transaction departments is typically formalized under vast vice presidential divisions. The result for students and parents is often similar. Treatment differs dramatically when one crosses the boundaries between internal organizational constructs—and sometimes between smaller offices in the same general unit. Even when commitment to customer service is high, the ability to bridge one office's interaction with another's is difficult, at best.

Knowing the Problem

Illustrations of service differentials and disconnects are familiar anecdotes on most campuses. Consider, for example, a student who has just received the troubling results of careful financial aid counseling upon learning of his parents' divorce. A career counselor might see him as irresponsible for not following up on unpaid internships they have been discussing. The student who excels in leading a community service club praised by the state's governor and the university president is facing academic probation. Her problems are compounded by the fact that she also faces a registration hold for a balance due on her university account. While students need to have confidence in the privacy of their records, they also have a right to expect their institutions to integrate information in useful ways to help them succeed at college.

In most cases, the lack of integration of what colleges know about their students is not the result of an intentional separation of records for privacy concerns. Such kinds of departmentally confidential records should and do exist for financial aid evaluation, health and

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counseling appointments, and student disciplinary files. However, many relevant pieces of information about students are stored in departmental files, both electronic and paper, that cannot be shared with other services within the institution because there are no practical means to do so and no institutional vision to make such sharing a priority.

With a priority for sharing information comes a value for each and every contact that institutional representatives have with a student. Under such an operating value system, professionals from one area think beyond their own functional areas of expertise about the ways other parts of their university may be affecting a student's experience. They don't think about these institutional effects to maintain and monitor an "us versus them" relationship among departments, but to create a cross-functional network of professionals focused on students. These staff use their contacts with students to maximize the probability that each student will fully experience the developmental and educational opportunities available at the institution.

How can such a value system be enabled, though, when so many of our departments have record systems that were designed only for internal departmental access? In many cases, such record systems are limited to the physical geography of the office itself, largely because they were designed before the advent of server-based technology.

Redesigning to Integrate Student Information

Tufts University faced the challenge of integrating student services in 1998, when it made the commitment to a comprehensive assessment and redesign of its services. The existing environment consisted of nine service departments organized in "silos" of professional activity, each of which had limited access to information across departmental boundaries. These organizational practices were reinforced by a cumbersome legacy information system and significantly restrictive approaches to providing access to data areas outside a department's specific transactional turf. Tufts is a highly selective private university that accurately enjoys a very positive reputation for its personalized educational interactions between students and faculty. However, students and their parents experienced a disconnect between such a personalized educational experience and an often bureaucratic administrative interaction.

In evaluating the quality of existing services, it became clear that few employees knew the work of other departments and many did not fully understand the processes of their own offices since most support personnel only worked on limited components of any process. Support personnel were the initial points of contact for students and parents, in person or by telephone. If these support personnel did not have answers to questions, they made referrals to different departments. However, in the redesign project's focus groups, the staff often admitted they were not sure if their referrals were correct—and many a student and parent could attest to that! Employees indicated they often did not know any of the other office staff's specific roles and made their referrals based on vague memories of what had been done in the past. Professional employees were generally seen as committed to helping students with academic, co-curricular, or career opportunities and issues, depending on their areas of expertise. Yet, other than biannual meetings involving most of these departments to assess the records of those students whose academic performance warranted action, there were no routine patterns of collaborative work among these offices.

What follows is an illustration of a typical information gap, in this case revealing the lack of integration across an important and universal process—registration. At Tufts, access to information about the status of financial clearance (required to register) was granted to staff only in the bursar's office. Staff in the registrar's office had to refer students whose registrations were not financially cleared to the bursar's office (in another building) to learn the basis for a registration hold. If the student learned that financial clearance was held up because financial aid had not yet been posted, the student then traveled to the financial aid office (in yet a third building) to inquire into the issue. Most frustrating in this scenario is how frequently such a string of queries can result in a relatively quick solution once the appropriate questions are asked and answered. Once the initial issue was resolved, the new and more lasting problem was the anger the student felt about the university's bureaucratic efforts to withhold his priority for registering at his assigned time.

The redesigned processes and organization at Tufts took these basic opportunities for contact with students and attempted to make each contact responsive, efficient, and useful to the student. Some important underlying principles are at work in achieving these outcomes. First, the organizations that have interconnected impacts on students were selected for co-location in a new student services center. Registration, financial aid, and bursar functions are now in the same building. Second, both professional and support personnel were trained to understand the connections among the student processes and records. Now, a student's inquiry about his or her registration hold is directed to a student services representative. The representative is trained to look at a cluster of information about the student's status that has been pulled into a simple electronic student portfolio from the information systems previously divided among the three separate offices. In addition to the presentation of student information system data, the student portfolio offers a screen where the user can review notes made by colleagues about prior interactions with the student. The representative adds a record of the current contact with the student to the student portfolio system so that a subsequent discussion with an aid counselor or a loan officer can take that information into account. Finally, if the student asks a representative a registration question about academic requirements, the representative can make an appointment with the student's class dean or remind the student to revisit a faculty advisor. The record of this referral would appear in the electronic calendar of the class dean if the student requests the appointment.

Incorporating Institutional Values

The design adopted at Tufts incorporates the values embraced by the institution: student time is important and access to the correct information, whether routine or expert, is a commitment made not only to students but to faculty and to student services staff. Contacts among staff, faculty, and students are important to the educational process at Tufts. Continuity of and accountability for information given is valued enough to be recorded so that subsequent staff encountering this student will be able to build on the advice given and reassess the choices the student has or hasn't made in the context of others' efforts on his or her behalf.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	○
Web Portal	◘
▪ Personalized	○
▪ Customized	●
▪ Community oriented	○
▪ Process oriented	◘
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	◘
Document Management	◘
Back Office Process Redesign	○
Year Recognized	2000

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

This example of a registration hold deals primarily with focusing on the student's question about a transaction, in this case, registration. The functional areas of bursar, financial aid, and registration still exist to create policy and processes, but the student interacts with someone trained to navigate the typical issues a student faces in completing a registration cycle. This cross-functional approach can also be applied to a more complicated service and educational set of interactions.

Colleges pride themselves on offering services that enhance a student's academic opportunities by developing individual interests and skills. However, large numbers of students can miss these opportunities because many academic and social demands compete for their time and interest. Unfortunately, students who fail to take advantage of the enrichment programs and services offered by their institutions are too often frustrated when they look back on their collegiate experience, realizing

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they missed important developmental steps in their education. The better an institution is at bringing its planned opportunities to the attention of students throughout their college careers, the more likely it is to create the signature education it intends for its graduates.

In this context, the careful management of student contacts with an institution takes on a value much higher than that of simple customer service or maintenance of smooth business transactions. The significant worth of shared information and a composite record of students' issues is most evident in the intentional coordination of the varied mentoring and advising contacts that faculty and professional staff have with students.

Choosing a Developmental Model

At Tufts, such collaborative efforts among student services professionals fall within two constructs. In the first of the new initiatives, the university's organizational design now emphasizes a developmental model for each of the undergraduate class years and for graduate students. The operational structure for this model is the class team, which is a group of three professionals, one each from Student Life, Career Services, and Academic Advising. Class teams are designed to ensure a strong comprehensive advising process for students throughout the four undergraduate years at Tufts as well as through graduate school. By actively linking with faculty advisors and with student-led and university-wide initiatives, team members work to guide the class as a whole, paying special attention to developmental issues associated with each class year's experience and issues that may affect a student's whole experience at Tufts.

As class teams increasingly help students identify the paths to tailor their own distinct experiences at Tufts, the university anticipates at least three positive results:

- Students will fully understand the breadth of opportunity offered within Tufts' huge variety of programs.
- Students will be deliberate about the way they deepen their knowledge and experience in chosen areas.
- Students will experience the strengthening of bonds within their graduating class.

Such an integrated student services program has been designed so that Tufts students can reap real benefits throughout their enrollment and in their future careers. For example, improved technology now underpins the new student services program, speeding indispensable information to students, differentiated by class when appropriate. Also, class teams can examine the progress of students over time, both individually and by subgroups (such as major or entering characteristics). This enables teams and other advisors to guide individuals to suitable postgraduate fellowship opportunities; support others who are developing a distinctive program for their major; or work collaboratively to find solutions with a student who may be having difficulty completing academic requirements.

To illustrate the developmental plan underlying the class team structure, a class year's typical milestones can be reviewed. For example, there are a variety of activities during students' sophomore year at Tufts: students select an academic major in spring; the university offers information sessions throughout the year for programs abroad, which about 45 percent of Tufts students opt to participate in during their junior year; students evaluate off-campus housing as an option for the first time; Career Services discusses and promotes summer internship opportunities; and students become increasingly focused on leadership and service opportunities after spending their first year in a variety of pursuits. The choices are numerous enough that students can be caught by surprise if they belatedly realize they have not prepared themselves to make one or more of these decisions. The sophomore class team tries to outline the full array of sophomore choices, both to students and to their parents. The team posts relevant information for those in the class to the sophomore class Web site and hosts gatherings for the class on one or more of the milestone topics at various times throughout the year. Finally, the team outlines for their colleagues on the junior class team their assessment of the strengths and weaknesses of the rising junior class, noting those in academic difficulty or those with exceptional accomplishments, and providing an overview of the class's developmental readiness for the next set of milestones.

Better-integrated student services can also link Tufts alumni to their new relations—currently enrolled students. The Career Advisory Network, a valuable tool for Tufts undergraduates, provides a means for alumni to give back to generations of Tufts students by serving as mentors. Their contact information and areas of expertise are maintained in an interactive database available to

members of the Tufts student and alumni community. Alumni are invited to provide basic information about their employment experience. Students and alumni alike are given authorization to access the network. They use keywords to identify alumni in fields of interest and can e-mail them to establish a mentoring relationship.

Using the Student Portfolio for Educational Collaboration

The second new initiative in the context of educational outcomes linked to departmental and electronic collaboration lies in the use of the student portfolio. This is the technology, discussed above, that provides better integration of a student's registration information and financial records to a generalist who uses it to help a student resolve problems. A class dean can also use the portfolio to assess the ways in which a student has or has not been using campus resources. Thanks to a flexible format and the linking of e-mail and phone messages within the construct of the portfolio's contact management, professionals can keep track of their interactions with students, parents, and faculty within a student's electronic file. These contact records can be shared with others within student services, or they can be maintained as private notes for the originating staff member only, depending on their confidentiality. Even when a staff member decides to keep notes private, however, it is often helpful for other staff working with a student to see that the student is receiving assistance from a colleague, documented by the contact records in the portfolio.

As an example of this planned use of shared information, picture a student who visits his advisor to discuss selection of a major. He is uncertain whether to major in Spanish or international relations. His advisor works with him to assess his academic talents and interests and suggests he visit a career counselor to assess skills and interests as they relate to future career choices. Within the context of shared use of the student portfolio, the advisor would have made notes about this conversation and posted them in the contacts portion of the file for other professional staff to access. The career counselor would then see the notes and target interest and aptitude testing. In further discussion with the student (or in review of the contacts recorded by student activities advisors), the counselor might also learn of out-of-class volunteer and leadership activities in language tutoring with recent immigrants, further reinforcing the direction of possible long-term interests. When the next academic advising appointment occurs, the portfolio record, which has been keeping up with this student's interactions in other parts of the university, will provide a richer context for the continuing dialogue about academic choices consistent with developing interests and abilities.

Is It Working?

How is this series of changes working for Tufts in its efforts to further strengthen the personalized traditions of a demanding yet rewarding educational experience? The new programs and procedures are still quite early in their implementation. However, satisfaction surveys reveal positive results, at least for the specific changes that have organized the flow of in-person, phone, and e-mail questions from students and parents. Surveys were e-mailed to all undergraduate students studying on campus in spring 2001, and about 20 percent responded.

In their responses (see Figure 9.1), students indicated significant appreciation for the improvements instituted. In addition, 90 percent or more of students said the student services staff were courteous and responsive, the physical layout is accessible, the convenience of most services in one place is much appreciated, and they had good experiences during their visits to the student services center. Among those who used the phone to obtain help, 90 percent reported that the staff answering the phone were knowledgeable and that their experience via phone was, overall, good.

Students were not surveyed about elements of customer service before the changes were made at Tufts. However, senior students have been surveyed annually about the functional aspects of services now offered in the consolidated student services center. Ratings of the areas of registration, bursar, financial aid, career services, and academic advising all were average or slightly below average in prior years. Similar reactions across all class levels by students participating in focus groups in 1998 were also collected during the redesign study. In the most recent surveys, satisfaction ratings have improved substantially. The graduating class of 2001 reported satisfaction levels nearly double those of the prior three years' graduates, with satisfaction reported by 60 to 80 percent across the various programs by the most recent graduates. Attention continues to be given to the career needs of Tufts' students because these satisfaction ratings

have not yet reached an acceptable level. However, ratings of "generally or very satisfied" have gone from 32 percent of the respondents in 1998 to 55 percent in 2001.

Surveys were mailed to parents with domestic addresses, and a response rate of about 20 percent was obtained. They also evaluated the change to a cross-functional, consolidated approach to providing services, and their responses appear in Figure 9.2.

More than 90 percent of parents reported that staff were responsive and courteous; 88 percent found staff to be knowledgeable. Nearly 90 percent reported they were quickly directed to the appropriate office. It was interesting to learn that a number of parents made a point of explaining why they disagreed with the statement "I find it easier [now] to deal with student services issues"; they indicated they had always found it easy to interact with Tufts' offices!

Students and parents are witnessing the results of an intentional effort at Tufts to share relevant information contained in student records at the point of first phone or e-mail contact with the trained generalists who serve students. Professional staff engaged in other, more specialized interactions with students can also benefit from this shared approach to information. First, they have greater confidence that students are more accurately and promptly referred to them following an initial inquiry to a student services generalist. Second, they have the opportunity to review what their colleagues in other areas of student services have been doing on behalf of the student when they review the student portfolio chronology of contacts documented. Planned for implementation is access to this contact record by faculty advisors. This final phase of implementation should effectively link all who collaborate in guiding Tufts' students to achieve the most from their college experience.

Intentional sharing of relevant information about a student's choices and concerns during college is an important information management role for student

Question	Strongly Agree/ Agree	Strongly Disagree/ Disagree
I favor the new student services setup over the old, decentralized setup.	95%	5%
The staff members I encountered were courteous.	96%	4%
The staff members I encountered were responsive.	96%	4%
The staff members I encountered were knowledgeable.	90%	10%
My phone call was directed to the appropriate person/office.	87%	13%
The information I obtained from the Web site was helpful.	94%	6%
E-mail was a useful alternative in communicating with the student services center.	86%	14%

Figure 9.1 Results of Student Survey of Service/Responsiveness

Question	Strongly Agree/ Agree	Strongly Disagree/ Disagree
The staff members I encountered were courteous.	97%	3%
The staff members I encountered were responsive.	93%	7%
The staff members I encountered were knowledgeable.	88%	12%
My phone call was returned in a prompt manner.	79%	21%
I was quickly directed to the appropriate office.	89%	11%
The quality of services is better this year.	75%	25%
I find it easier to deal with student services issues through the new center.	77%	23%

Figure 9.2 Results of Parent Survey of Service/Responsiveness

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services to play. Secure and confidential records still must be maintained privately within departmental systems. However, many records of information sent, advice given, opportunities offered, and accomplishments achieved can provide enriching connections among resource areas for a student advised by different faculty and professional staff. The delivery of truly student-centered educational attention is improved when the information about contacts can be maintained in an easily shared format. Professionals think of the student's comprehensive experience more readily when they see the full picture of his or her contacts within their campus. They also come to see their colleagues as members of a committed network of support for the students they are all trying to serve in the educational process. Valuing this change in behavior within an organization and enabling it through changes in technological support can make a significant difference in the quality of the collegiate experience.

Tufts University

Founded in 1852, Tufts University is a private, research I university that is recognized among the leaders in higher education in the United States. Tufts also enjoys a global reputation for academic excellence and for the preparation of students as leaders in a wide range of professions.

Approximately 40 percent of the university's 5,200 undergraduates pursue course work outside the United States to add a strong international dimension to their fields of study. Innovative research and joint degree programs are available for both undergraduate and graduate students in liberal arts, sciences, engineering, and the university's seven graduate and professional schools.

Tufts enrolls 8,500 students from across the United States and more than 100 countries. They attend classes on the university's campuses in Massachusetts and Talloires, France. The university is affiliated with the School of the Museum of Fine Arts and the New England Conservatory of Music, both in Boston.

Tufts graduates physicians, diplomats, dentists, veterinarians, entrepreneurs, teachers, engineers, researchers, scientists, and liberal arts professionals who will be leaders in their chosen fields and who believe it is their responsibility to contribute to the advancement of humanity and the improvement of today's global community and environment.

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10

Seton Hall University

Change Beyond Change: The Next Iteration of Enrollment Services

Thomas Green, Nancy Jefferis, and Regina Kleinman

Overview

In 1995, Seton Hall University launched an institution-wide diagnostic review of all of its business processes. The review identified those processes that were inefficient and costly, creating dissatisfaction among the students, or otherwise negatively affecting the university. It recommended how to radically redesign them to bring about breakthrough improvements in the areas of customer satisfaction, greater efficiency, and cost reduction or revenue enhancement. New process designs were to be supported by innovations in information technology for reducing work, minimizing bureaucracy, and improving service to students and other customers.

The diagnostic review identified the enrollment stream of services as a mission critical area in need of improvement. It indicated that the enrollment Offices of Admissions, Registrar, Financial Aid, and Bursar were highly autonomous and operated in separate silos. They were poorly coordinated and lacked a strong student service orientation. It described the culture in the offices as highly bureaucratic and the processes for getting work done as highly fragmented, with each employee performing only one small part of the process. Fragmentation of work made it impossible to offer an integrated response to student problems. Students were bounced from one office to another to conduct basic business, such as registering or resolving accounts.

The diagnostic review suggested that the enrollment processes (from prospective student inquiry through graduation) be redesigned from the perspective of the student to provide better service, that the offices be consolidated, and that processes generally be streamlined to eliminate redundancies and inefficiencies.

To reinvent the way work was performed, Seton Hall launched the project to redesign enrollment services in 1996. Consultants, expert in business process reengineering and familiar with higher education, were engaged to work with a redesign team. The redesign team was charged with reinventing the processes for getting students admitted, enrolled, financed, and billed and to redesign them to be student centric, seamless, and less bureaucratic. The resulting redesign plan called for the merging of the Offices of Admissions, Registrar, Financial Aid, and Bursar into one cross-functional

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***Regina Kleinman** has worked in higher education for 20 years, most recently at Seton Hall, where she currently reports to the Division of Information Technology as a systems/business analyst. She has also led the Facilities Scheduling Redesign Team and the Human Resources Implementation Teams, and was project leader for the Enrollment Services implementation.*

department called Enrollment Services. Employees who were cross-trained in the basics of all four functional areas would staff the new department and be formed into teams to handle all the students' enrollment needs in one step, one stop. A Web front end to the existing student administrative systems would provide self-service for conducting transactions online and viewing information. Renovations would be needed to create the physical space for a one-stop center and new work areas for the merged department. The plan was presented to the Executive Cabinet and the Board of Regents and approved. Implementation was launched later that same year.

For an earlier discussion of the redesign of enrollment services and the early stages of implementation, see Kleinman (1999). This chapter will detail what has taken place since then: We will discuss the experience of taking a radical redesign from paper to reality, from implementation to operation. We will share the major lessons we learned, the successes and the failures, the welcome surprises and the disappointments. We will outline the evolution of our redesign—how and why we added to it or altered it as we went along. And we will look at how our vision continues to evolve today, as the initial concept, which was considered radical at the time, is now quickly becoming the new standard of student service—one-stop, one-step, in person, or online.

Compelling Case for Change

As mentioned above, the results of the diagnostic review of university business processes provided the initial impetus for change that led to the redesign of student enrollment services. Implementation of the redesign plan merged the Offices of Admissions, Registrar, Financial Aid, and Bursar. We made progress on providing cross-functional services to students, parents, and other customers. Renovations took place, and the central service counter was built to provide one-stop service for all enrollment needs. Employees functioned (more or less) in the newly defined jobs. An ongoing program of cross-training for employees was established. Web Services for Students appeared on Seton Hall's Web site and gave students the ability to conduct online transactions, such as registration, and access data, such as student accounts or unofficial transcripts.

But, inevitably, adjustments need to be made to a plan during the implementation phase as new information or developments arise or as unanticipated obstacles are encountered. Some things can't be anticipated but only learned from experience. As we proceeded with building this new department, reorganizing the work processes, and cross-training the staff, we came upon new issues and problems that needed to be addressed. At other times, we made course corrections or reaffirmed our goals after having wandered away from the original plan. The major problems we wrestled with in implementation were telephone service, physical layout, increased performance expectations, technology, and coping with resistance to change. Following is a brief description of the problems. In the next section we discuss the solutions we developed.

Telephone service. During renovations, when the four departments were temporarily relocated to one large room in the Student Center, the cacophony told the whole story—phones rang off the hook. The sheer volume of calls, with four departments combined into one space, had not been anticipated, and we had to change our original redesign—a call center would be needed.

Physical layout. The physical layout of Enrollment Services in the redesign plan called for a large central area where the one-stop service counter would be located. It would be the first thing students would see as they entered. The supporting back offices were to be arranged around it. But two things affected that plan: limitations of the U-shaped building that was to house Enrollment Services and a change of leadership with ideas of its own.

A newly arrived vice president, who was responsible for implementing the Enrollment Services redesign, decided to alter the physical layout to follow, not the specifications in the redesign plan, but a plan that she thought had been successful at her last institution. The altered layout put all the clerical staff together in one arm of the U-shaped building, while their managers were located in other parts of the building. Her theory was that by putting staff from the four functional areas together in one place, cross-functional knowledge and skills sharing would be facilitated and the work could be distributed among them to create economies of scale. But it was too early in the staff's transition toward cross-functionality. They resisted taking responsibility for acquiring more skills and knowledge in order to perform a wider range of tasks (even though the new jobs were higher paid). And they were not accustomed to being self-managed. They still required constant supervision. Managers, now located in a different part of the

building, were not in a good position to supervise or to monitor or train.

Meanwhile, the student service counter was placed toward the rear of the arm of the U opposite the clerical staff location. The intention was to keep back office staff undisturbed by the comings and goings of walk-in traffic. But the location of the student service counter impeded supervision of the counter and management interaction with the employees working there. Managers need to be able to monitor the activities of staff to get a sense of what is being asked of them and how they are handling student requests. Staff deserve managerial support and can learn from observing manager-customer relations, but the physical layout did not lend itself to this. With the service counter located in one part of the building and the managers in another, the level of supervision and managerial participation was just not happening. The physical distance provided a justification for managers who were disinclined to take time away from work to train and monitor. By spring of 2000, we were planning a second renovation to resolve these problems.

We discovered another reason to renovate the student service counter. Enrollment Services had been designed with an emphasis on in-person customer service. But it became apparent, especially after Web Services for Students was introduced, that far more students communicated to us over the telephone or through the mail than in person. We realized that the student service counter had to become a larger, full-service response center to handle walk-ins, telephones, mail, and Web response if we were to make dramatic improvements and satisfy student needs.

Higher performance expectations. During redesign, student focus groups and surveys revealed dissatisfaction with the quality of service. The redesign was intended to rectify that dissatisfaction by establishing a higher standard of performance. At the start of implementation, when the four enrollment offices were temporarily relocated into one large area, it was easy to observe the treatment students were receiving from employees, more easy than when the four offices were separated and behind closed doors. It was an eye-opening experience. Employees from the four different offices had varying levels of customer orientation and service skills—some of them inadequate for the old standard of service, not to mention the new. It was going to be harder than anticipated to achieve our customer service goals.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	○
Web Portal	○
▪ Personalized	○
▪ Customized	○
▪ Community oriented	○
▪ Process oriented	○
Service Support Center (telephone/e-mail)	○
Customer Relationship Management (CRM)	◐
Document Management	○
Back Office Process Redesign	○
Year Recognized	1997

● *In production*
○ *Implementing*
◐ *Planning*
⊙ *Designing*
◉ *Not intended*

Technology. The original redesign for Enrollment Services planned for significant self-service through the university's Web site. We accomplished that by implementing a Web front end to the university's student administrative systems, giving students the ability to register online, see class schedules, print unofficial transcripts, access their accounts, perform degree audits, and a do few other transactions. Before this, the Office of Admissions had a robust site with information about the university, an online application service, answers to frequently asked questions, and an e-mail contact where students could expect to get a swift response. But we realized that more was needed if we were to offer a virtual one-stop service center for current as well as prospective students. And, because so much of the telephone volume represented repeat requests for the same information, it was apparent that part of the solution to the telephone problem would be to post current and frequently asked-for

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information on the Web and organize it in the way the customers approach it, rather than into the old virtual silos.

Resistance to change. Some institutional cultures are innovative and experimental by nature. Others are steeped in tradition and not readily accepting of change. Experience gave us a full understanding of the degree to which our institution was tradition-bound and not change-friendly. The weight of tradition made adoption of the redesign plan, and changing the way work had always been performed, very difficult. Even more difficult was the cultural change we were seeking—one less rigid and bureaucratic and more student-centered. The command-and-control management style was deeply entrenched. In fact, it was contributing to the need for so much supervision of staff at the service counter. Staff had not been allowed to know more and do more for the student. They were expected to do only their assigned piece of work and do it over and over again. The hierarchical organization and command-and-control style of management was not suited to the teamwork of the new Enrollment Services.

Resistance to change was the single greatest obstacle to implementing the redesign plan. Employees attempted to hang onto old, comfortable habits and refused to let go of the old paper forms and processes. Managers, unconvinced that the new environment and processes were an improvement, felt justified in resisting the implementation and did not hold their staffs accountable for performing the new cross-functional work. The managers felt a loss of power and prestige in the newly merged department. They were experts in the old way of doing things and had advanced as a result, and now they were being asked to do things differently. It is understandable that they would attempt to forestall the transition.

As for the clerical staff, not all were eager to be liberated from their functional silos. The redesign plan intended to give them more access to data and ability to do more for the students. But in implementation we found a number of employees were content and secure in their silos and did not wish to leave them for the more complex new jobs, even if they paid more.

Project Summary

In spite of these challenges, Seton Hall remained committed to fulfilling the mission of Enrollment Services, which reads as follows:

> Enrollment Services is committed to excelling at meeting the needs of the Seton Hall university community and the prospective members of the university community. We will do this by providing a one-stop, one-step environment. We, the members of the Enrollment Services teams, will support the achievement of Seton Hall's enrollment and retention goals by providing outstanding service and will remain dedicated to the people-driven, cross-functional approach towards our work.

The redesign evolved during implementation, and we added solutions to help us reach our goals or, in some cases, to expand on them. The following describes the actions Seton Hall took to modify or enhance the redesign plan for Enrollment Services based on the lessons learned during the implementation.

Improved telephone service. Prompt, professional, and courteous telephone service is an absolute in any service environment. Customers expect to receive answers to their questions or fulfillment of their requests with minimal waiting and problems. In Enrollment Services, we found out that it is one thing to articulate an improved standard for telephone response and another to achieve it, especially when the previous four offices had different standards of service. What came naturally to some employees was a significant increase in expectations to others. This created friction when employees who believed they had been responding to calls appropriately were told differently.

It is difficult to address performance if you do not measure it, so being able to track telephone activity by employee became critical. One measure of telephone service is the abandonment rate—the percentage of callers who hang up without having reached an employee. Several factors contributed to abandonment rates that were unacceptably high, including a lack of unified management commitment to the goals, which resulted in a lack of accountability for telephone service. Exacerbating the situation were occasions when back office processing errors prompted a deluge of student telephone calls questioning their accounts or other wrong information that had gone out in the mail.

Telephone service was addressed in two ways—by providing staff data on their telephone performance and by putting renewed emphasis on accountability from the managers. The university uses an automated call

distribution (ACD) system. In addition to distributing calls to the next available employee, the ACD system allowed us to capture data on the number of calls coming into the department. We were able to assess peak periods of the day, month, and year in order to shift personnel accordingly.

Employee performance reports from the ACD system were made available to them and reviewed in meetings with their managers. The meetings were informational in nature and allowed staff to see how well they were performing against the averages of the entire call team. When performance was insufficient, the reasons for it or ways to improve it were discussed.

A goal of a 2 to 3 percent daily abandonment rate was set for the staff. The rates started to drop almost immediately. When the staff achieved a 0 percent abandonment rate, they were treated to lunch with the division's vice president. Currently, the abandonment rate is being maintained at an average of 3 or 4 percent, a significant improvement from a year ago. This still gives us room to improve, and we are looking forward to achieving a norm of 0 percent abandonment.

A new customer response team and revised physical plan. By the 2000–2001 academic year, we had had sufficient experience with one-stop student service to know that it was time to create a new approach. We reconceived the purpose, management, and physical layout for our student service counter. Altering the organization and physical layout of the service counter gave us the opportunity to address the other form-and-function problems in the department.

Having realized that a full-service response team was needed to provide truly holistic service, the service counter was rebuilt to serve students who contacted in various ways—in person, over the telephone, through the mail, and via the Web.

Previously, back office staff worked at the counter for specified periods during the week. This did not work as well as expected because staff felt torn from their "real" work at their desks. Managers were reluctant to supervise the counter or to hold employees accountable for answering telephones. We addressed the supervisory issue by forming a Communications Team of two administrators who, among other things, coordinated the staff at the service counter and at the telephones, which relieved the managers of this responsibility. But this setup had a drawback: these administrators were not the employees' "real" bosses, i.e., their functional managers. So compliance was not always forthcoming. Our solution was to dedicate staff who were selected for their knowledge and skills to work with the communications administrators. We created a full-time Customer Response Team.

Key attributes for members of the Customer Response Team included function-specific knowledge, commitment to service, and a desire to join the new team. Staff were interviewed and rated, and the top six members were selected. (We excluded a few employees who had vital skills in a particular area and whom it would have been detrimental to reassign.) Staff tend to lean toward either back office or front line work by aptitude, so building the Customer Response Team consisted mostly of balancing strengths.

We knew that six Customer Response Team employees would not always be sufficient, especially during busy seasons. We had to ensure that all other employees would be ready to serve at the counter or on the telephones as demand dictated. We accomplished this using ongoing cross-training and by continuing to bring back office staff up to the service counter to work with the Customer Response Team. This gave them the opportunity to engage in hands-on sharing of knowledge with team members—an important part of cross-training.

This need to maintain all staff in a state of readiness to assist the team at the counter or on the telephones has actually helped us to fight the tendency of some employees to remain in their old silos and limited range of responsibility.

The Enrollment Services representative job descriptions were an upgrade from the old clerical jobs. They paid more in recognition of the extra work and knowledge required. Handling the telephones and responding to students in person remains everybody's shared responsibility, even with a full-time Customer Response Team in place. All staff must have a good, basic understanding of all four functional areas so they can be shifted to meet peak demand. The Enrollment Services reps in the back office and those on the Customer Response Team have the same job descriptions. One group simply has a back-office emphasis, and the other has a strong front-line emphasis.

Complex situations requiring in-depth knowledge continue to be directed to specialists in the functional

areas (e.g., financial aid counselors). But as team members' knowledge grows from experience and training, they are increasingly able handle matters once regarded as so complex that they had to be directed to a specialist.

To function as intended, the Customer Response Team needed a more suitable physical environment. We redesigned the service counter so that it was larger and moved it from its hidden location to a more central one. In essence, we have returned to our original idea. But we expanded on the original idea by installing a mini-call center behind the counter and a mail processing area off to one side. The two Customer Response Team leaders have offices located on either end to facilitate supervision and support. Team members can shift between working in the call center, the mail area, or at the counter. We built the six-station call center with flexible modular cubicles so we could expand it to accommodate additional staff as needed to meet peak period activity. The call center comes equipped with printed and online information guides for easy reference.

We plan to change the mail processing area into a document intake center where imaging, scanning, and logging of documents will take place. While paper is decreasing in all areas of enrollment services, managing the enrollment processes still calls for improved efficiency and knowledge of the flow of documents through the department. Document imaging will provide digitally stored information. Scanning will eliminate the need to enter data from each form and data element. Workflow will allow e-documents to be routed and monitored. (See the discussion of the enhanced Web site below for information on e-forms.)

As for the back office, we are making better use of space to improve functionality. Plans have been developed with the participation of all staff and administrators. A key goal is to locate managers closer to their staffs to improve supervision and interaction. Information technology specialists from the four functional areas have been grouped together into their own team and physically situated more centrally in the department. This moves them out of their silos and makes them accessible to everyone.

The information technology team coordinates the technology requirements for the whole department. Teaming them up allows them to share their function-specific knowledge with each other. One of the goals of this team is to replicate their knowledge and ensure that more than one person owns critical information technology skills. No skill critical to the enrollment operations should ever be in the possession of only one person. We learned that lesson early in the organizational transition, when employee dissatisfaction caused a number of desertions and we lost many information technology skills at the same time.

Training and professional development. Continuous learning and improvement are essential in any organization wishing to be dynamic and responsive to its customers. It is even more important to a redesigned, cross-functional department such as Enrollment Services. Employees who previously learned only one aspect of the registrar's or bursar's operation, for example, are now expected to know the basics of all four functional areas. New employees are not encumbered by the old ways of doing things but might have a steep learning curve to get to the level of knowledge required in the integrated department.

The first step we took in implementing the redesign plan was to set up and deliver a cross-training program for all employees. The program was briefly interrupted as we encountered departmental crises and managers were loath to let their staffs spend time away from their desks. But training resumed after the crises were resolved.

Training and development for staff presently takes place on four fronts: professional development for administrators through outside conferences and seminars; regular staff meetings between managers and their teams; weekly management team meetings; and weekly cross-training sessions for all members of the department. Training includes knowledge sharing sessions from front-line staff as well as managers. Some staff members have worked at Seton Hall for a long time and have developed a deep understanding of specific functional areas. They are often the best people for training others. Newly hired staff brought with them their knowledge of business processes and procedures successful at other institutions or corporations. They became important assets in the training program.

Employees are organized into three training groups, and each group attends training on its appointed day each week. Content and presentation is identical in each session. Trainees provide feedback that is compiled and shared with the trainers. We keep records of attendance and circulate it to all managers to ensure accountability—refusing to allow their employees to leave their desks and

attend cross training was an early manifestation of resistance to change.

Employees receive training manuals with the handouts and materials used in the sessions; however, the training manual is not always the handiest resource when an employee is searching for a quick answer to a student's question. Enrollment Services employees, especially those in the Customer Response Team, are expected have a large amount and variety of information at their fingertips. So we borrowed the FAQs we developed for the new integrated Enrollment Services Web site and expanded on them to build the employee FAQ database, which is cross-indexed and searchable. Information is easily accessible to employees, and they can find what they need quickly. The database continues to grow through employee contributions. If they find they are dealing with the same questions or problems over and over again, they know this is something to add to the FAQ database. In fact, this was how we built the student FAQs, by asking the employees to submit answers to the questions they were continually being asked.

Professional development for managers had been largely dormant. Most had not attended a conference or seminar in several years. Thus, they did not have the new ideas and methods for changing and improving our practices that come with exposure to others in the field and learning about the leading edge in enrollment services. Urging them to attend professional development conferences and workshops has rectified that. Administrators were invited to submit a list of conferences and seminars they wished to attend during the year. Budget was reviewed and approved. Encouragement was given to those who were reluctant to attend. Consequently, managers attended a higher number of meaningful conferences and seminars and brought back solid ideas for new ways of working.

Enhanced Web site and Web portal (including e-forms). The university's Web site lacked an integrated approach to the enrollment stream of services. It contained a great deal of information on the admission page for prospective students seeking information but did not serve current students as well. Financial aid information was available through the admission page, which made sense for the prospective student but created confusion for the current student. We had Web Services for Students, the online self-service module for online registration and other transactions, but it wasn't tightly linked to related sites. We needed to get the FAQs, policies, forms, and a single e-mail contact—all information and services relating to the enrollment processes—on a unified Enrollment Services Web page.

We built the Enrollment Services Web site to be, in effect, the virtual equivalent of the physical one-stop student service counter. The site is designed so students no longer need to visit multiple sites or drill down through other pages to find what they need. Important news and reminders are posted prominently and one of the first things students see. FAQs are available from any page on the site. The most frequently used forms in PDF format are linked wherever they are mentioned, in FAQs or information points as well as in a forms library. Designated representatives in the department respond to Internet queries. The enhancement of the Enrollment Services Web site provides the kind of 365-24-7 information not available through the call center. At the same time, it helps eliminate the need for students to make telephone calls or in-person visits. The FAQs were developed as staff recounted their frequent interactions with students, parents, and faculty, in person and over the phone. This also provided the basis for the employee FAQs database. The following are typical of the FAQs posted on the Web site:

- How do I take a course pass/fail?

  Students may take up to 12 credits of *free electives* on a pass/fail basis. No more than six credits, however, may be taken on this basis during a 12-month period. To apply to take a course pass/fail, please complete the Course Adjustment Form (click here), also available from Enrollment Services, and indicate the course(s) to be taken. Take the completed form to the dean of the school or college of your major.

- How do I apply for financial aid?

  All students who wish to receive financial aid must complete the Free Application for Federal Student Aid (FAFSA). This form is available in December and can be completed after January 1. The FAFSA can also be completed online at www.fafsa.ed.gov.

Seton Hall has been nationally recognized for its use of technology in teaching and learning. Classrooms and other areas are either hard-wired for network access or equipped for wireless access. Students are accustomed to going to the Web for everything. Academic and administrative computing can no longer be treated as two

separate things. To students, it is all the same, whether they use the Web for online learning activities, to register for classes, or to get reserved materials from the library. Administrative departments are challenged to look at paper-intensive processes and find electronic solutions. Students and their parents have come to expect it of us. A student engaged in a learning experience enhanced by dynamic online activities will find it unacceptable to stand in line, fill out triplicate forms, and wait weeks for it to be data-entered. The student naturally expects the same degree of technology use for administrative processes as for academic activities.

The subject of the forms used to conduct business with students could constitute an entire field of study by itself. Until recently, for any transaction not available on Web Services for Students, paper forms still needed to be filled out and processed. Many students had to visit the office to find the correct form, fill it out, and route it through the academic maze of required signatures. We knew that if we were really going to make serious process improvements, we had to become inventive with technology to tackle forms.

Enrollment Services, composed of four previously separate offices, had a lot of forms—about 100. We saw an opportunity to improve student service by streamlining the forms, improving their function, and reducing their number as well as making them easily available online as Web Services for Students.

The ideal was for all forms to be electronic so they could be filled out online and submitted and routed for approvals, with the data downloaded to systems databases. The reality is that this is a long-term project, so we are moving toward it gradually. Many state governments have required their colleges and universities to make forms available electronically. Like them, we have converted our most frequently used forms to PDF files, put them in a forms library, and linked them at all appropriate points. These forms can be filled in on-screen and printed out and returned. This is a stopgap approach until we can develop true e-forms for the Web—a process that will require a substantial investment of time and resources. In the short term, building in authentication procedures allows PDF forms to function as electronically signed documents that can be e-mailed to the appropriate employee for processing. This simple step makes it substantially easier for students to negotiate the bureaucracy.

Seton Hall has also recently developed its Web portal. On one Web page, students can access Web Services for Students, library resources, e-mail, their course sites, the Seton Hall home page, and any customized elements they select from a menu of choices (news and weather, horoscope, stock quotes). They can personalize the appearance of the screen and customize the panels and the elements they contain. The portal provides the university with an effective mechanism for pushing out essential and timely information—a bulletin board resides on the front page of each student's entry to the portal, providing information for all or specific cohorts of students. Cohorts can be members of an organization, a course, or a class, such as the freshman class. Students can receive announcements from professors, and professors can post course tasks with due dates that automatically show up in each enrolled student's task box. Tools include a calendar and grades for online quizzes or other assessments. It is the ease of negotiation, the ability to customize, and the fact that everything is literally at one's fingertips on one Web page that distinguishes the portal from an ordinary Web site. It can enhance students' sense of community, something that students feel strongly about and are attracted by at Seton Hall. The Web portal is currently available to students, faculty, employees, and alumni. Once the portal for these groups is established, it will be rolled out to prospective students, parents, and other guests. See Figure 10.1 for a sample Web portal.

Seton Hall is a ubiquitous computing institution. All full-time undergraduate students are issued laptops, and classrooms, the library, and residence halls are wired for network access. Every course automatically is assigned course space on the portal, and students are automatically entered in their course's space as they register. The course automatically appears in the "My Courses" panel of their portal. In their course space, students engage in online collaborative learning with their classmates, receive tasks from faculty, take learning assessments, and find links to other Web sites for course materials.

Change management. Anyone undertaking a redesign project should not underestimate the emotional and intellectual energy expended on change by all parties involved—front-line staff, mid-level managers, and executives. Rapid and wholesale change will make employees feel that their lives are out of their control. The greatest weapon against fear of change is

communication. Front-line staff need to be included in the development of new processes if they are to buy into them. Fear of change needs to be addressed openly with all employees on a regular basis. Many forums are available where this can happen—weekly team meetings, management team meetings, and e-mail messages from executives to all members of the department. From time to time, we hold air-clearing meetings to allow misconceptions to be deflated and energy to be built for the positive aspects that change brings, such as greater efficiency and better-served students. Celebrations for milestones achieved, or pizza parties after a particularly hard period, can be morale boosters and show appreciation for people's work. Gifts can be rewards for excellent performance. We have used all of these methods to help members of the department confront the fear associated with change and create a positive environment.

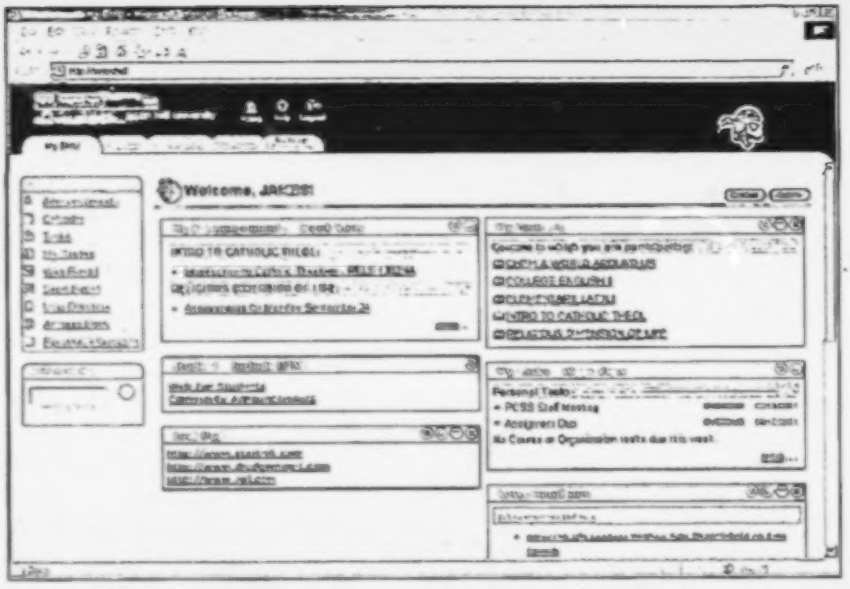

Figure 10.1 Sample Web Portal

Lessons Learned

We looked back over the first four years of implementing the redesign and saw areas where we achieved success and other areas where we could have done better. In this section we share with planners our observations about organizational transformation, the things we would do differently if we had it to do over, and the things we believe we did right.

Impact of corollary university events

- *Crisis of leadership.* In the annals of process redesign projects, a classic pitfall to avoid is change of leadership in midstream. The new executive may not support the wholesale change that redesign engenders or the approach being taken. In the middle of implementing the redesign of Enrollment Services, the department was assigned to a newly arrived executive with a different game plan. Where the game plan conflicted with the redesign, it created some confusion about the goals and what the project was intended to achieve. Eventually, yet another change in leadership presented us with the opportunity to reexamine the redesign. It led to a renewed commitment to its intentions and goals, and we got back on track. Going back to the "blueprint" and verifying the soundness of the concept—not losing sight of the vision—has been important to achieving success at innovation.
- *The information technology strategic plan.* The redesign of Enrollment Services occurred simultaneously with the implementation of the university's five-year information technology strategic plan. This strategic plan included a mobile computing initiative that provided all full-time students with laptops. Network access was extended to all areas of the university. Areas difficult to retrofit for network access are going wireless. This has won Seton Hall awards for the most-wired Catholic university in the country and for continuing leadership in the use of technology. This technology focus gave us little choice but to use technology to innovate student services as well. A recent university survey indicated that students expect to transact most, if not all, of their administrative activities online. Therefore, we recommend to student service planners that they

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develop a close affiliation with information technology departments to ensure that information technology resources and capabilities for online services are provided.

Evolution of the original concepts

- *Understanding student preferences.* The evolution of Enrollment Services allowed us to incorporate what we learned from experience at the customer service counter: many more students were coming to us over the telephone than by any other medium. Therefore, we needed to design our customer response accordingly. We altered and enlarged the original service counter to include a call center staffed by personnel trained in all four functional areas. In the original redesign plan, we described offering students the choice of high-tech or high-touch service. The high-touch aspect of service delivery, meaning quality in-person interaction, came to mean interaction via any medium. The lesson we learned is that a cross-media response is just as important as a cross-functional response. We have built the Customer Response Team to serve these imperatives.
- *One stop is too many.* Our one-stop concept evolved into a no-stop concept. Students much prefer to go online and do things for themselves than stand in line. In addition to Web Services for Students, we developed the integrated Enrollment Services Web site to pull together the previously separate or nonexistent Web sites for the Offices of Admissions, Registrar, Financial Aid, and Bursar. This includes FAQs, Ask-a-Question, and forms. The Web portal further reduces runaround.
- *Generalists and specialists.* Achieving our goals depended not only on technology but on a new kind of employee, the high-level generalist. "Generalist" does not mean that one has only a general understanding of the work. High-level generalists have both depth and breadth of knowledge of all areas and are equipped to handle any issue that might arise. They have to be multimedia-enabled, having the ability to work well with people in person, on the telephone, or over the Web. The lead generalists in the Customer Response Team fulfill another need of this rather large and complex department, the need for centralized in-house communications. They gather and disseminate the latest information to make sure everyone has what he or she needs to serve the students regardless of the nature of the inquiry or problem. Enrollment Services has become its own customer.
- *Building for flexibility.* We knew foot traffic would decline after Web Services for Students became available and better telephone response was achieved, but we underestimated how fast students would take to Web self-service and how much they would prefer *not* to come in. We thought they would still value face-to-face human interaction. So space that had been designed to accommodate many students became obsolete faster than expected. After all, this is the Nintendo generation, and, for the most part, students prefer to have Web access and do things for themselves. We advise planners to use modular furniture and adaptable cubicles that can be moved and upgraded to allow flexibility and adaptability as the implementation proceeds and conditions change, rather than build permanent counters and workstations.

Employee and managerial preparedness

- *Skills training for the new work.* One thing we did right was cross-training, but we would do it more intensively if we had it to do over. We learned that our training was correct because it was cross-functional, but we needed two levels of training—one for those who were veterans but perhaps from different areas in Enrollment Services and one for those new to the organization or to higher education. We were right to look outside higher education for hiring specific business skills. For instance, we drew upon the banking industry when hiring personnel for collections and loans, bringing a level of performance in that area not enjoyed before.
- *Hiring for the new jobs.* Job descriptions changed dramatically when we launched Enrollment Services. We initially decided to try and fill the new jobs with the same employees who had been working in the former four offices. But we didn't know if it was realistic to expect the same employees who were responsible for, and entrenched in, the old way of performing work to perform work in a different way and at a higher standard. We tried to prepare them for the new

environment with cross-training, customer service training, and hands-on training. But the reality was that the new jobs often required skills and aptitudes different from those needed for the old jobs. For instance, a job with strong customer contact might require skills that do not readily coexist with the skills needed for a job that is mostly data entry. The result was that, in some cases, we did not have the appropriate talent in place for success. In organizational transformation, it is ideal to define the new jobs and the skills required to perform them, and then to find the best possible people to fill them. But few institutions do that when faced with losing current and often longtime employees.

- *Management for the new organization.* The issue of preparedness for new jobs is not limited to the clerical level. There are implications for management as well. In a traditional environment, management will tend to be of the old command-and-control, assembly-line model. We learned that we had not prepared our managers sufficiently for the radically different style of management that would be expected of them in a team-based, process-oriented organization. The result was a culture clash between those working toward the future and those holding onto the past—a critical lack of alignment between institutional goals and managerial goals. Ours is a traditional university and somewhat hostile to change. Yet we were pursuing an initiative of radical transformation. There was a naïve assumption that managers would support and actively work to realize the redesign of Enrollment Services because their institution was asking them to do so. But a manager might have a career path in mind that does not include a redefinition of the work he or she has been doing and which he or she regards as a profession. Where will these managers' loyalties lie—with their careers or with the institution? If primarily with their careers, what degree of cooperation can be expected of them? Paying more attention to management, rather than assuming they would fall into line, is something we would do differently today.
- *Crises of leadership.* One of the easiest ways to fail at process redesign is to say you are doing it and then not do it. This can happen if there is change in leadership midstream and the new leader pursues a different agenda. The goals of the original redesign cannot materialize if they are not being pursued, and this can create the impression that the redesign plan has failed. Planners are well advised to make sure the executive sponsor is committed to the letter and spirit of the approved design.
- *Aligning management.* Just as important as steady executive leadership is managerial alignment. This means that the managers must have goals and objectives that are aligned with the goals and objectives of the redesign plan and with their executive leadership. Simply put, success will be hard to achieve if your management is not working with you, possibly even against you. We would advise planners to make sure their management is committed to the transformation goals before launching the initiative. One thing we could have done better was preparing our managers for the very different style of management that was going to be expected of them. Intensive training in modern management techniques, including an orientation toward process management rather than task management, toward a holistic approach to work rather than a "silo-ized" approach, might have helped them grow and reduced their resistance to change.

Organizational transformation and cultural change

- *Not relenting.* Any transformation initiative is very difficult and will go through crisis periods. In the face of serious crises, it would have been easy to give up and go back to the old ways of doing things. We did not relent. Seton Hall's motto is "Hazard Zet Forward," which loosely translated means "forward despite difficulties." There was a high degree of resistance to change on all levels in Enrollment Services, but the leadership believed in what we were trying to achieve and did not let setbacks bring the project to a halt.
- *Generalists and specialists.* Achieving our goals depended not only on technology but also on a new kind of employee—the high-level generalist—rather than the old-fashioned administrator. Handling all student inquires in a one-stop environment requires employees who are highly cross-trained, cross-functional, and cross-media-enabled. The generalist has a depth and breadth of

knowledge of all areas within the department and is equipped to handle almost any issue that might arise. These are the people to whom we looked when we built the Customer Response Team. The specialists are still the people who know the most about a particular function, who manage the processes, and to whom we turn to resolve unusual student problems.

- *Managing change.* Cultural change is at least as difficult to achieve as changing the way work gets done. The shift to a culture emphasizing teamwork and customer service, rather than one built on paper processing and bureaucratic rules, has proved very difficult. In fact, it has been supremely difficult for employees (both managerial and clerical) to accept changing the way work is performed. There was a great pull to maintain the old hierarchical organizational structure and the old processes, standing in direct conflict with the reinvented processes that emphasize teamwork. The reinvented processes had been designed around the needs of the student, not the needs of a system or set of bureaucratic rules. This was something on the order of a revolution. That revolution has yet to be fully realized. The advice to planners is to assess early on how deeply resistance to change runs in your institution's culture, determine the underlying fears and reasons for the resistance, and formulate a strategy for managing change before launching the revolution. Change readiness assessment can gauge the speed with which employees are able to incorporate change before they become stressed and unable to function. If we had had a better sense of this, we would have moved a little more slowly and methodically through the implementation. (The pacing, however, still has to be aggressive or resistance to change will win and the initiative will grind to a halt. You must balance not moving too fast with not losing momentum.)

Critical Success Factors

Following are the key elements in the successful evolution of Enrollment Services into a cross-functional one-stop (or, with the Web, no-stop) center of service for students, prospective students, faculty, and others.

Technology. Technology has allowed us to give the student what they need without having to visit the office. With Web Services for Students, the improved Enrollment Services Web page, and the Web portal, no-stop service is becoming a reality. This means the Customer Response Team has more time and attention to focus on students, parents, and other customers with needs best addressed through the high-touch approach.

Improved customer service. Our ability to maintain a low telephone abandonment rate has been critical to our success. Even with rich Web resources, students and parents still show a strong inclination for conducting business over the telephone. Callers must know that they can receive outstanding and consistent service when contacting Enrollment Services at Seton Hall. This requires a climate in which staff, specialists, administrators, and managers all contribute to serving the students promptly and fully, and in which student satisfaction is the measure of professional and organizational success.

Strong service at the counter and on the Web has become one of our strengths. Close supervision and support of these areas has been essential to our overall ability to serve students, parents, and other customers. The decision to pull staff out of the functional areas and dedicate them full-time to the Customer Response Team has proved critical to success.

Measuring student satisfaction will provide a baseline of information for ongoing comparison. Plans are under way to tag onto a widespread student survey to establish the baseline. This survey will be administered annually to different student cohorts, allowing us to measure our progress over time as they move through their careers at Seton Hall.

Executive commitment. The level of change created through business process redesign requires vision and long-term commitment at the executive level. Seton Hall was fortunate to have this support. Enrollment Services reports to the executive vice president for administration, Mary Meehan, who understands the dynamics of business process redesign and is able to secure and maintain the support of the university president and Executive Cabinet. This level of support makes it possible to make long-range plans for resources as well as deal with the inevitable discontent of personnel in a rapidly changing environment. Our ability to conduct a second renovation creating the expanded customer response area and the other changes in the physical layout was dependent on the Executive Cabinet.

If it had not supported these changes, the reworking of space to improve workflow would have not happened.

Conclusion and Recommendations

Organizational transformation is exciting. It can awaken lethargic employees, lift them to new levels of professional achievement, energize the whole institution, and set it among a higher level of peers. But there are pitfalls that, if not avoided, can create problems as onerous as the ones the initiative was intended to overcome.

Our first iteration of Enrollment Services sought to break down the functional silos that caused fragmentation of services and resulted in hardship for students and operational inefficiencies. We looked to technology to streamline the work and provide student self-service. After we fell into and then emerged from a few pitfalls, the second iteration focused on back office operations and the employees who perform and manage them. The human dynamic of the organization has consumed much of our attention, whether it is how we equip our employees for the new work, how the physical layout affects performance, or how we create the shift to a deeper culture of service. We modified and expanded the original redesign to address these issues as well as to incorporate new developments in technology.

Much of the responsibility for the success of a transformation initiative will fall to management. The challenge for management in maintaining a strategic focus is to create an environment that is both stable and flexible. Stability is needed to provide a foundation to support growth; flexibility is needed to maintain creativity and the ability to respond to change, and to avoid becoming rigid in approaches to work.

Senior managers must take ownership for the vision and champion it to the department undergoing transformation and to all levels of the university. They must hold the management team accountable for aligning their goals and activities with the goals of the institution and the transformation initiative. Managers need strength of purpose to uphold the vision against the challenges to it that are inevitable. They must have a thorough understanding of the plan, its intended outcomes, and how each part of the plan affects them and their staff members. The vision must be broad enough to describe desired outcomes, but detailed enough to be relevant to everyone. The plan is never to be regarded as written in stone but always as a work in progress. If one piece changes, it does not mean that the entire vision is to be questioned.

Flexibility and creativity are requirements for carrying the vision through from implementation into operation. Implementations never go entirely as planned, so process redesign is by nature iterative.

If we have learned one thing, it is that change never ends. We are never "there." Just when we think we've achieved the goal, we realize even greater possibilities for achievement, such as those offered by Web portals, pervasive computing, and a culture of work that has moved away from the industrial, assembly-line model to a process-oriented, customer-centered model.

Seton Hall University

Bishop James Roosevelt Bayley, the first bishop of Newark, New Jersey, founded Seton Hall University in 1856. Seton Hall is the oldest diocesan university in the United States and the only Catholic university in New Jersey. It has nine schools or colleges, is fully accredited, and offers more than 45 undergraduate degree programs, 70 graduate degree programs, and online degree programs. Of the approximately 10,000 students who attend Seton Hall, approximately 5,000 are undergraduates; 2,000 of the undergraduates are resident students.

Seton Hall has gained national recognition for its use of technology in teaching and learning, for networking, and for information technology strategic planning. The university cosponsored with EDUCAUSE the Third and Fourth Ubiquitous Computing Conferences in January 2000 and 2001. Seton Hall has been awarded the 1999 EDUCAUSE Award for Excellence in Campus Networking and the 2000 EDUCAUSE Award for Systemic Progress in Teaching and Learning with Technology. The Yahoo! Internet Life Survey of Most Wired Colleges and Universities cited it for being among the top 50 in 1999, 2000, and 2001.

Seton Hall was highlighted in the *National Survey of Student Engagement 2000 Report: National Benchmarks of Effective Educational Practice* as an example of a university that performs particularly well in terms of student-faculty interaction and academic challenge.

The university's mission is to prepare students to be servant leaders who will make a difference in the world, and our entire community embraces this commitment.

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The nature of the changes in our culture and the growth of technology are such that the most vital quality for success is the ability to plan for and adapt to change, so we are never reacting to the next wave after it has already swept over us.

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Boston College

Living with Change: The Implementation and Beyond

Jim Kreinbring

Overview

In June 2000, Boston College concluded Project Delta, a four-year, campuswide initiative to reengineer administrative and business operations with the goal of providing better services to students, parents, faculty, and staff. Named after the mathematical symbol for change, Project Delta's stated mission was to leverage the campus network and the Web to offer on-demand information and services, allowing the university and its constituents to exchange information and transact business from anywhere and at any time.

An essential element of this effort was reengineering university processes to make them simpler, less costly, and more effective. The combination of streamlined processes and the application of new technologies could help BC meet rising expectations from students, parents, and faculty for better access to information, less bureaucracy, and a customer-friendly service environment.

With the 1996 launch of Project Delta, BC was looking to provide its constituents with more personalized services and the instant access to information they enjoyed in other parts of their lives. The convenience of automated teller machines and Web-based retailers suggested new ways to do business. Electronic applications were replacing paper forms, e-mail was replacing postage stamps and envelopes, and Web sites were providing accurate, personalized information without long distance phone calls or waiting in line.

BC had other reasons to begin a major change initiative like Project Delta. While enjoying the best financial health in its history and ranked among the nation's most competitive universities, BC had ambitious plans to elevate its academic programs, particularly in graduate education; expand its research facilities; and continue a campus building program that would cost $350 million over the next 10 years. The aspirations to improve virtually every facet of university operations called for a comprehensive look at operations, services, costs, technology, and organizational effectiveness.

Compelling Case for Change

Foremost among Project Delta's priorities was a desire to completely redesign the way services were delivered to students and their parents. Focus groups conducted in 1995 had confirmed that parents viewed BC's administrative processes as cumbersome and that services fell short of their expectations.

Services for students and families at BC were structured along traditional organizational lines. The enrollment management area was responsible for financial aid, while the university controller did all billing and account management. This meant that a student's financial information resided in two different

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departments, under different vice presidents, and in offices at opposite ends of the campus.

This resulted in a patchwork of services, and while this structure worked well for the university, it created confusion and frustration for students and parents. Since each group had its own information system, current and accurate information was not always accessible or available to service staff. As a result, students and parents were often shuttled back and forth, both literally and figuratively.

Other services were likewise scattered among different campus divisions. Students had to go to the campus police department to get university identification cards and parking stickers. Dining Services provided services for the meal plan. Information technology was responsible for creating and managing student e-mail and voicemail accounts, and the registrar's office resolved problems with class registration, student records, and transcripts. Services were structured around university departments, not the needs of the students.

Project Summary

The blueprint for a new student services process was in the Project Delta Direction Statement, the project's master plan published in October 1996. The direction statement was the result of 12 weeks of planning and research by a team of BC administrators and faculty working with reengineering professionals from Andersen Consulting.

Using Andersen's business process reengineering techniques and applying best practices from the service sector, the team outlined a series of initiatives to make student services and other university operations more direct, less bureaucratic, and more intuitive for the customer or recipient. The direction statement was Project Delta's long-range plan for transforming the university's services, business operations, information systems, technology, and organizations, with only classroom instruction and the conduct of academic research explicitly off limits. Suggested changes were intended to minimize customer confusion and improve service by combining related processes, building service delivery around the consumer, and clustering services in support centers.

The direction statement included 24 major initiatives to renew campus services, test and deploy new technologies, conduct business over the Web, and eliminate unnecessary and redundant work. The description of each initiative included specific technology requirements, a development schedule, a detailed cost/benefit analysis, and an assessment of risks and benefits.

The following were among the plan's most significant proposals:

- Create a single system for managing student information and services, including admissions, financial aid, student loans and accounts, academic advising, career services, and academic transcripts and records
- Create a service center to help students and parents resolve problems with financial aid, student loans, student accounts, dining plans, ID cards, and class registration
- Create a network of administrative service centers, each providing fiscal, clerical, and technology support to a specific school, administrative division, or group of related departments
- Upgrade or replace the university's legacy systems for human resources, student records, and financial accounting with a suite of Web-based applications
- Restructure the funded research process and institute a research support center to help faculty secure and manage research grants
- Upgrade the campus technology infrastructure by expanding network bandwidth, creating a secure Internet/intranet environment, and replacing desktop computers for all faculty and staff
- Expand the use of the campus ID as a debit card and eliminate cash purchases on campus
- Replace paper forms with Web forms to the extent possible and eliminate checks by instituting direct deposit for payroll checks and employee reimbursements
- Redesign the university's compensation, performance management, and employee development systems to ensure an adaptive, skilled, competitive workforce

Reengineering student services. Reengineering student services became a centerpiece of Project Delta's mission to "deliver prompt, personal services and information to all constituents in a do-it-yourself manner every day and all day."

Campus executives approved the direction statement and appointed a Student Services Design Team to turn the outline for student services into a workable model. The team, which included a faculty member and administrative staff from enrollment systems, the university registrar, university housing, information technology, student accounts, student affairs, financial aid, undergraduate admissions, the office of the dean of arts and sciences, and university counseling, spent six months carefully documenting and then redesigning existing services and processes.

The reengineering and planning process included the following four phases:

- *"As is" review.* The team documented the existing processes for all of the services provided to students. Working with staff members in the financial and academic areas, team members examined traditional service areas like student accounts and the registrar as well as campus ID services, the student health center, university housing, and student advising. The process of documenting the "as-is" helped the team identify the critical elements of the existing processes and uncover redundancies and inefficiencies.
- *Cost analysis.* After collecting data on departmental budgets, staffing levels, and resource allocations, the team worked with a financial analyst from the office of the executive vice president to document the cost of each existing process and identify potential savings from redesigned processes or new technology.
- *Student satisfaction survey.* With the help of an external market research firm, the team conducted a student survey to determine the level of satisfaction with current services. While the study revealed that students were generally satisfied with the university's services, it was clear that many did not understand how financial aid and other university procedures worked.
- *High-level design.* The team created a new design in which all services were part of a continuous process that began with an admissions inquiry and ended with a student's graduation. This high level, "to-be" design structured services from the perspective of the student or parent and identified technology requirements for the new processes, both for front-end services (using the Web to transact business) and back-end processing (providing staff with better access to information and preparing for an electronic records system). Under this design, a new Office of Student Services would manage all the academic and financial processes relating to students and families.

The high-level design—called the Student Life Model—cast all financial and academic processing as services and/or processes:

- *Personal and electronic communications services:* Communications between the university and its students and families
- *Student market analysis/development:* Enrollment planning and management
- *Credential review and outcome:* Processing and reviewing credentials for admission
- *Establishment of personal service accounts:* Information and service records for students and families
- *Family educational financial planning:* Advice and direction on financing education costs
- *Student educational planning:* Advising and career services
- *Renewal of services:* Year-to-year room changes, registration changes, renewal of meal plans
- *Transitional services:* Services for leaves of absence, year-abroad programs
- *Transitioning students out:* Graduation and post-graduation services
- *Design process review:* Ongoing review of university services, processes, organization, and technology use

The high-level design was followed by a detailed design strategy that would phase in the new model over several years. The first phase would focus on creating the online information services and consolidating the service components of the reengineered financial and academic processes. Later implementation phases would automate the back-end processing with an electronic document management system, implement a new Web-based student record system, develop standards and metrics to monitor and improve service levels, provide families with online calculators and tools to manage student debt and help with financial planning, and create cross-functional service teams organized by college or school and assigned to a cohort of students for the duration of their undergraduate or graduate studies.

The Office of Student Services opened in fall 1998, bringing together services that had previously resided within the registrar's office, financial aid, enrollment systems, student loans, student accounts, collections, and the campus police department. The following summer, student service employees moved into the new Student Services Center, bringing to reality the vision of a single point of contact for academic information and student financial matters. The center offers a walk-in service counter, a call center, new work space for staff, and self-service kiosks where students can access services and information online. (For a complete discussion of the planning and implementation of the new student service organization at Boston College, see Owens and Campanella (1999).)

Eighteen months later, in summer 2000, a survey of 1,048 undergraduate parents conducted by an independent, outside agency revealed that the student service initiative had achieved its goal of providing high-quality services for students and parents. The following are among the results of the survey:

- 93 percent of those who had visited the Office of Student Services were "satisfied" to "very satisfied" with the in-person assistance they received.
- 88 percent were "satisfied" to "very satisfied" with the ease of reaching BC by phone.
- 95 percent said their son or daughter was "satisfied" to "very satisfied" with the university's secure Web site for student services.
- 82 percent of respondents reported they would use a secure Internet site for conducting business with the university.

Outcomes. When Project Delta concluded in June 2000, much of its ambitious agenda had been achieved. The university had consolidated student financial and academic services, created an information and service center for students and parents, replaced the technology help desk with a network of local technology consultants, purchased and installed new desktop computers for all faculty and staff, replaced its mainframe-based human resource system with a PeopleSoft application, established a human resource service center, rolled out a secure Web environment (named Agora, after the Greek marketplace), and implemented a debit card system for university purchases.

Work continued on other initiatives, including a new organization to support research faculty, more online services for students and faculty, and phase two of the PeopleSoft implementation. One proposal—to create administrative support centers—had been indefinitely postponed amid concerns about the initiative's proposed changes in university operations and organizational reporting structures.

The student service initiative completed its phase one objectives of bringing together the work of the financial and academic offices, creating a student service center, and giving students access to their academic and financial information in a secure Web environment. To reduce traffic and lines in the new center, the first wave of online services were focused on the most common requests, including the following:

- View your course history, current schedule, and grades
- View your exam schedule
- View your class roster (names and photos)
- View your financial aid application and awards
- View the status of your Stafford Loans
- Complete the Stafford Loan entrance counseling requirement
- Complete the Stafford Loan borrower authorization statement
- View/change your addresses
- View/change your privacy settings
- View your library loans and hold requests
- View your degree audit (for undergraduates)
- View your student account statement
- Request a reprint of your student account statement
- View your advisor information
- Create/add money to your meal plan
- Request a student account refund
- Request student enrollment certification
- Order a replacement ID and deactivate a lost or stolen ID
- Submit a library service request

Although the initial Agora transactions were only a portion of what the design team had envisioned, they clearly demonstrated the value of an electronic information and service environment.

After the project. After two years of planning and two years of implementation, student services at BC had been transformed. However, the project was not complete. Since the summer of 2000, the Office of Student Services has continued to work on the Student Life Model.

Currently, student services and information technology have partnered with FolderWave, an applications development firm, to develop a Web-based electronic document management system for imaging, storing, sharing, and managing all student financial records. The system, now in test mode, will eliminate the use of paper files, except as data sources, and allow staff to access all student financial information using a Web browser. The system will accept data from scanned images (including optical character reading) and electronic file transfer from external sources. The system will also exchange information with BC's existing student record system.

Other projects include enhancements to the call center technology to reduce wait times during peak periods and providing additional customer service training for staff. Longer range projects include replacing the legacy student information system with a Web-based application and creating the cross-functional service teams for undergraduate and graduate students.

Keeping the strategic vision. Keeping the strategic vision over the course of a project is not easy. Reengineering projects, by their nature, tend to be disruptive and might leave many longing for a quick end to the project so campus life can return to normal.

In its four years, Project Delta affected nearly every area of the campus in some way, and when it ended, the pride of achievement was accompanied by a sense of relief. Since project teams had been structured to operate outside the normal hierarchy, some managers and directors were anxious to reclaim their traditional turf. Most employees hoped that the end of the project would alleviate some of the tension and the uncertainty created by the project. In addition, project leaders, who had championed new ideas and challenged the notion of business as usual, had been worn out by the pace and intensity of the project. Campus executives were understandably weary of criticism and the contention for resources. And the end of the project meant that team members could stop juggling project responsibilities with those of their regular jobs.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	●
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	●
▪ Process oriented	●
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	○
Document Management	●
Back Office Process Redesign	●
Year Recognized	1996

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

Despite these strains, the university chose to extend Project Delta's goal of improving process and service beyond the project's end date, institutionalizing the change effort in several ways.

First, the university appointed change agents to leadership positions in the new organizations. For example, several of the design team members became leaders in the new student service organization, while the project leader for the student service project was named to head the organization. These appointments were incredibly important, putting individuals who understood and supported the new service model in positions where they could oversee its long-term implementation.

Second, the university established a permanent internal consulting group to help executives and campus organizations evaluate their operations and make changes in process and organizational structure. This

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group also assumed responsibility for a departmental self-study program started by Project Delta and adopted as a permanent management assessment tool.

Lessons Learned

Anyone who has tried to effect broad or rapid changes in the university environment can attest to how difficult it is. This work is not for the faint of heart. Being a change agent may not increase your popularity on campus, but there are ways to improve your odds of being successful. With the benefit of hindsight—and the experience of four years of heavy lifting—some of these things have come into better focus.

Set your goals carefully. Consider carefully what needs to change and why. Setting goals is a critical first step in any change project, and they tend to have two dimensions: height and breadth. How high do you set your targets? How broadly do you define the field of play?

Setting the size of a change project will depend not only on the size of the problem, but also on the level of executive support for the project. When times get hard and the inevitable roadblocks appear, high-level intervention will be needed, so the sponsoring executive or vice president needs to be aware of and endorse the scope of the project.

The student service redesign project at BC was part of a large, campuswide change initiative, so we chose to aim high and wide. The project's broad scope allowed us to take a comprehensive look at university services relating to students and family, regardless of the department that provided the service or the vice president who owned the existing process. In designing the new model, we asked the team members to focus on what they thought was "the right thing to do" rather than "what is do-able." We chose to set the targets high, knowing we might have to scale back, rather than simply aim for "realistic" targets.

Like many universities, we wanted to consolidate our student services into one administrative unit focused on delivering quality services to students and parents. Some campuses have done this by bringing together only the front-end service components, the parts that interface with students, leaving the processing and control with the traditional organizations behind the scenes. We chose to reengineer from the ground up, changing the flow of work as well as the ownership for service and operations. This approach inevitably raises organizational issues and invites political challenge. Because we had strong executive leadership and buy-in, we were able to make substantial and dramatic changes.

In many cases, however, incremental change will be sufficient and may be preferable. Gradual changes that do not upset large parts of the organization are much easier to implement because they tend to be less complex and less likely to raise political opposition. Whatever the size of the project, the goals need to be clearly stated at the outset.

Planning is critical. While having a clear mission statement and well-defined outcomes is important, a detailed project plan is critical. The reengineering process is composed of hundreds, even thousands, of tasks—documenting the details of the current process, sequencing the steps of the new process, defining the required technology changes, assessing the capabilities of the staff, and keeping everything running during the transition.

All of our project leaders and the members of our planning and implementation teams were university employees. Choosing the right people is critical. We wanted people who knew about current operations but were willing to question the status quo. Many of our designers were assistant directors or managers who understood how things worked but didn't have a strong political function. We chose people for their intelligence, creativity, and knowledge. We did not appoint team members to represent their department or to speak for a certain constituency.

Some of our project leaders had project management experience, but we hired professional project managers to help us structure the larger reengineering projects, including the student service redesign. We contracted with Andersen Consulting and IBM for assistance in creating and monitoring project plans. Their expertise resulted in more detailed planning documents, and they provided a valuable, objective point of view that helped our teams work through the details of the project.

The design team must work with some degree of insulation. Team members were advised that they were not obligated to discuss change proposals with their managers or others not on the design team. Involving too many people in the design process or searching for broad consensus can limit creative solutions. However, we did have a formal process for getting input from directors and from staff.

Expect implementation problems. Simply put, implementation is hard. This is where the changes become real and begin to affect people in the organization. Change is stressful—more so for some people than others—and implementation is all about change.

During the design phase, our project consultants told us that planning is the easy part because it involves a small number of people who are committed to the project. Implementation involves many more people, some of whom will not share the designers' enthusiasm for the new system.

Changes in process disrupt the flow of work as the new process replaces the old. Staff members can be stressed as they try to learn new operations, and in some cases, work in new positions, acquire new skills, and get acquainted with new coworkers. When we merged our services, some staff members were adjusting to a new position while working in a different building and getting acquainted with a new boss. And because the implementation took place during the academic year, most of the training had to be done on the job, making a difficult implementation much worse.

In hindsight, we should have provided more training to staff before the changes. While this problem might have been predicted, others were unexpected. For example, in bringing together our student services, we also brought together the students who needed service, creating longer wait times. Students used to walk from one office to another to get service, but now they simply came to one place and stood in line. Managers solved the problem by putting more staff members in the walk-in center during the first few days of each semester, an illustration of the need to monitor implementations and make quick adjustments where needed.

Careful planning and preparation can minimize the problems of implementation, but every project manager should be prepared for both expected and unexpected problems. Because implementation is where people's work lives actually change, you can also expect resistance and a certain level of turmoil.

Finally, implementation can bring out the critics. Expect the inevitable problems of implementation—even a perfect plan is difficult to implement—to be portrayed as flaws in the design or reasons to abandon the project. Perseverance is important at this point; sometimes you simply have to outlast your critics.

Executive leadership is important. Executive leadership and support is important in every phase of the project. The executive sponsor needs to affirm the goals of the project and be prepared to articulate that support when opposition arises or the project bogs down. This is particularly true if your project is making substantive changes in the organization, reassigning authority or process ownership, or affecting more than one area.

Often, change projects are the result of an impending financial crisis or enrollment problem. BC had neither as an incentive, making executive support for Project Delta even more important. The executive vice president, the project's chief sponsor, assembled an executive team to serve as his cabinet regarding the project. The executive group included the vice president for human resources, the financial vice president, the dean of the school of management, and the chief information officer. During implementation, the executive team was expanded to include the vice president for student affairs and the academic vice president.

Technology is key. Having the right technology can make the difference between success and failure with a major change project. Our new student service design relied on Web-based self-service technology that would fundamentally change the way student services would be delivered. Under the new model, much of the information exchange that traditionally took place in person or with paper forms would now be done via the Internet. Students would have 24-7 access to their financial and academic information (e.g., confirming that their Stafford Loan had been applied to their student account), using a secure Web site. With students using the Web for information and routine transactions, service staff would have more time to devote to exceptions and complex cases. It was this combination (technology for routine tasks, in-person service for complex issues) that would elevate services for students and parents.

This proved to be a workable design, but delays in getting a critical mass of services online limited the success of the new service model. Without a full suite of Agora services, staff at the walk-in desk and in the call center had to continue providing low-end services longer than expected. Anticipated technology solutions were delayed by Y2K projects, changes in information technology leadership, and conflicts with other technology priorities.

Without the needed technology, some elements of the model had to be indefinitely delayed.

Be prepared to make difficult personnel decisions. To encourage support from faculty and staff, the project was carefully structured to protect employees and avoid conflict with the staff. Campus executives had pledged that no layoffs would result from Project Delta's organizational shifts or process changes. Despite these assurances, the project created uncertainty and anxiety on campus.

Delta's reengineering projects changed the work and the job roles in many areas. For some in the student service area, this meant making a shift from processing paperwork and forms to a service-oriented role that required interaction with students, faculty, and others. Some had to acquire new technology skills or learn to work with customers. The transitions were not always easy.

With the no-layoff policy, team leaders went to great lengths to help staff members find a suitable role in the new organization. The policy, however, allowed a small minority who opposed the changes to hinder the project with criticism and lack of cooperation. A few vocal individuals created morale problems that increased tension during the implementation and made the transition more difficult.

The no-layoff policy was intended to reassure employees and encourage their cooperation, and, for the most part, it worked. However, it would have been helpful if we had decided early to transfer or offer buyouts to those individuals who could not or would not contribute to the new organization.

Expect to be criticized. It may be inevitable that change projects in academia will be criticized as misguided, unwarranted, and wrong. From the outset, some on campus denounced the project, questioning the need to improve service or reduce cost, and criticizing the business process reengineering model as inappropriate in the university setting.

While faculty worried when we referred to our students and families as customers, campus executives recognized that the university offers many services that parallel private sector businesses. Colleges and universities operate restaurants (we call them dining halls) and apartment complexes (residence halls) as well as medical centers, theaters, and fitness centers. We provide transportation, landscaping, housekeeping, laundry, and entertainment services, and we sell books, clothing, computers, food, and tickets. For these services, our students and their parents rightly see themselves as customers and expect high-quality service and attention for their consumer dollar.

Be prepared for criticism, and be willing to evaluate what you hear. When the input is valuable, make the needed course adjustments. When it's not, be ready to ignore it.

Communication is a problem. All the change management manuals and our own consultants advised us that communication with stakeholders and campus constituencies would make or break a successful project. We found this to be one of the most problematic areas of the project. We thought we were communicating well, with executives holding open discussions with staff and briefings with the deans and with information published in a number of publications, including a project Web

Boston College

Boston College is a coeducational university with an enrollment of 8,900 undergraduate and 4,600 graduate students representing every state and more than 95 countries. Founded in 1863, it is one of the oldest Jesuit, Catholic universities in the United States. *U.S. News & World Report* ranks Boston College 38th among national universities.

Boston College confers more than 3,800 degrees annually in more than 50 fields of study through 11 schools and colleges. Its 641 faculty members are committed to both teaching and research, and have set new marks for research grant awards in each of the last 10 years.

The university is in the process of adding faculty positions; expanding faculty and graduate research; increasing student financial aid; and widening opportunities in key undergraduate programs, such as foreign study, internships, community service, and personal formation.

Boston College has experienced unprecedented growth recently, including a 21 percent increase in undergraduate applications and a 100 percent increase in revenue from voluntary giving in the past five years. Its endowment stands at more than $1 billion, among the 50 largest in the nation.

The university's 116-acre main campus is located in an open suburban setting six miles from downtown Boston.

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page, a project newsletter, and the campus biweekly newspaper. However, it seemed this was not enough.

Many on campus felt they did not understand the project and were not being included in the decision-making process. And the latter was true, to an extent. With the project operating outside the hierarchy, the normal advise-and-consent process was often bypassed. We also knew that we could not achieve dramatic operational changes using a consensus model; many on campus were consulted, but no one, not even vice presidents, were given veto power.

In the end, it was not clear if we had failed to communicate effectively or whether the messages of change were simply not welcome. In any event, more communication is better than less, and candor in your communication is essential.

Everything takes longer that it should. In one of our first Project Delta team leader meetings, someone cited a recent report (Kerr 1994) that noted that, of all the institutions of the Western world that existed when the Lutheran Church was founded in 1530, only 66 still exist in recognizable form: the Catholic Church, the Lutheran Church, the parliaments of Iceland, the Isle of Man—and 62 universities. It was a sobering reminder of how difficult it can be to effect change in the university environment, where stability is prized and the value of management is often questioned.

Even with good planning, strong executive leadership, and capable team leaders, things may take longer, perhaps much longer, than you expect. However, if you have a worthy goal and you believe that your students and their parents deserve better than they now get, it is worth the wait. With all our struggles and occasional setbacks, those of us who worked on the student services project and other Project Delta initiatives recognize the great success we had and the contribution made to the Boston College community.

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University of Minnesota

Enrollment Services E-Business Strategy and Development

Susan Nalewaja Van Voorhis and Tina M.R. Falkner

The Compelling Case for Change

In 1995, the University of Minnesota began examining how information technology could improve the level of service provided to the campus community. The goal was to deliver seamless, high-quality services to students, faculty, and staff on each of its four campuses by instituting an e-business strategy using the PeopleSoft software system. At the same time, the university envisioned reducing administrative costs. Robert Kvavik, associate vice president, and Michael Handberg, director of Web development, were leaders in advancing this vision.

The vision was to provide students with the best possible customer service using three means of contact: the Web, the telephone, and the personal visit. This type of e-business strategy improves customer service and serves a diverse clientele, which made it an ideal area upon which the university could concentrate its efforts and finances. We anticipated that the e-business strategy would radically improve the service culture and streamline key business processes.

The Web provides the opportunity to bring together many university service units and learning communities, while offering a communication path to meet the needs of students. For example, in years past, registrars' offices were known for their long lines, for extended wait times, and for causing student runaround. Parents of today's freshmen can still remember the days of going from one campus department to another, collecting class permission cards, standing in long registration lines, and encountering sometimes-unfriendly clerks. The creation of the Web has provided registrars' offices with an opportunity to alter service levels dramatically. By offering registration and other related processes via the Web, students can now complete almost all transactions online thus reducing runaround and time spent standing in lines.

This self-service functionality has also given staff in other administrative offices opportunities to provide automated services for students while simultaneously increasing in-person service levels. Students who enroll in a college or university immediately upon completing high school have come to expect from their institution multiple ways to complete day-to-day business processes. Therefore, colleges and universities must step up and deliver quality service to students by phone, in person, and via the Web.

***Susan Nalewaja Van Voorhis**, university registrar and director of enrolled student services at the University of Minnesota, led a team in the successful implementation of the PeopleSoft software student records/advising system. She continues to implement the one-stop student service centers and the one-stop classroom management center. She also has managed a Web-based project that integrates all student services using a client-emphasis approach. She was recently selected as a faculty member for the AACRAO Registrar 101 module.*

***Tina M.R. Falkner**, assistant to the registrar at the University of Minnesota, is the key contact and university expert for student data privacy issues and has created a data privacy workshop for faculty and staff. She is also a key player in the Student Portfolio and Academic Profile Web project. Currently, she is involved in several collegiate reengineering projects at the university.*

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Project Summary

The University of Minnesota decided to proceed with its envisioned business development in conjunction with replacing its non-Y2K-compliant, homegrown student administration system. The student administration vendor software chosen, PeopleSoft, would allow for the integration of processes across many offices, such as the registrar, financial aid, and student accounts receivable. The design of the Web front end and the student self-service component would provide the university a large return on its investment. Since 1999, the registrar's office has eliminated three full-time and five student positions. The estimated cost savings for the university is $150,750 per year. As frontline student services center staff continue to be cross-trained, additional positions will be shifted to meet different needs or will be eliminated due to attrition.

The new self-service system had the following goals:

- Decrease reliance on back-office staff for day-to-day operations or transaction processing.
- Increase self-reliance for students.
- Provide convenient student service avenues.
- Satisfy expectations of students, staff, and faculty.

The self-service nature of Web-based processes allowed staff to be assigned new functions and to learn new systems. Currently, the Office of the Registrar allocates one half-time position to assist with business analysis for data warehouse reporting. Staff also assist with document processing for an imaging system and are involved in creating databases for efficient processing using Microsoft Access database software. During the implementation period, the functions that were automated as a result of the e-business strategy allowed us to keep our heads above water because a portion of staff time was freed up to do other business. After implementation, the level, quality, and quantity of services available to the university community via the Web were greatly enhanced, which helped offset many of the negative aspects associated with the implementation of the student administration system, such as slow system performance or response time, cumbersome data entry, and frequent system overload. Students, faculty, and staff could access more information and conduct more business via the Internet, such as order transcripts, e-mail feedback, e-mail for help, cancel classes, notify students of schedule changes, make policy updates, and make online reports.

Three years into the project, the university community has embraced the new way of conducting business and the partnership is considered a success.

Lessons Learned

An e-business implementation is rarely risk-free or completed without some lessons learned, as we'll describe in the following sections. Initially, the e-business project was separate from the university's enterprise-wide replacement of the non-Y2K-compliant student administration system. Despite the fact that these two projects were simultaneous, they each had separate project managers. The project to replace the student administration system was envisioned to provide the infrastructure for the Web-enabled services.

Reengineered processes. Before implementing the enterprise project and developing the Web front end, the university spent several months reengineering business processes. Reengineering teams evaluated business processes that could be optimized through current technology and identified how the Web could provide a self-service avenue to students. It was necessary that the reengineering teams represented diverse perspectives; to this end, teams were composed of directors, collegiate staff, administrative staff, and students.

Before starting an e-business project, institutions must address potential issues at the institutional level:

- Are there any policies that need to be addressed or changed?
- Are there processes that need to be altered or steps that need to be eliminated?
- Can processes be eliminated?
- Is a paper or audit required for specific business processes?
- Are signatures necessary?
- Are organizational structures in place to handle this new way of doing business?
- Are project managers and the institution prepared to handle issues as they surface during the project?
- Is a human resource strategy in place for office staff?
- Is a communication plan needed for the paradigm shift?

To further compound the murky issue of implementing an enterprise project, the university had already made several self-service functions (registering, viewing class schedules, viewing student accounts) available via the Web on a mainframe system (which was the infrastructure in 1995). These Web-based services were highly popular with the university community, and, as a result, staff and students were not willing to give up any functionality already available via the Web as the implementation of the new enterprise student system proceeded. In fact, the university community wanted more self-service functions on the Web. Students not only wanted academic processes online but a host of other functions, such as purchasing athletic or theater tickets, viewing accurate campus calendars, applying for housing or renewing contracts, and linking to the campus newspaper. Students envisioned that the personal planner or portal would get them out of lines and online.

As the business process reengineering reached completion, it became evident that, even though the university's offices are organized into silos, information provided to students needed to be seamless. Having students move in and out of different Web sites for related information was not acceptable. There was no need, at that time, to design Web services to mimic the silos students encountered in personal visits. To gain buy-in and to ensure that the new system would be intuitive and logical to students, a team of students and staff worked together to design the Web prototype. The team determined that the student population already possessed a general idea of how a business process works, but they did not have to understand all the components to conduct their business. Information available via the Internet should be fast and thorough to best assist students in making decisions, while also allowing them to concentrate on their studies. This process, the user-centered design model (Burnett and Pantel 1999), has allowed the university to provide simple and easy access to key business processes. Once the bugs and system performance issues were resolved, student satisfaction with the product and its functions increased dramatically. For example, student complaints to the registrar's office decreased from 1,200 per year in 1999 to only two in 2000—a phenomenal achievement.

Partnership. As the student system replacement project began full implementation in January 1998, the director of Web development established a partnership with IBM. This partnership was necessary due to the amount of resources required to implement the university's vision of seamless services via the Web. Additionally, the university did not want to compromise any currently existing functionality. Satisfied students with constant or improved service levels to the wider university community would prove to colleges and universities across the country that the IBM-University of Minnesota partnership was a success.

Forming a partnership with a company can be grueling, especially if the institution has no precedent for such a partnership. Writing the detailed contract between the company and the institution can take months; once attorneys are involved from both sides, the process slows down dramatically. Despite the time and effort, designing an effective contract is a very important piece of the process and must not be taken for granted.

Following are other key issues to remember when establishing partnerships:

- Define the fixed and variable costs for development.
- Build a flexible contract.
- Check partner references.
- Get everything in writing—be skeptical of unwritten promises.
- Establish a win-win situation between the partners.

Ideally, most of these issues surface during the reengineering process. Some issues, however, are buried or are only discovered as development progresses. Addressing as many issues as possible ahead of time will result in a smoother implementation.

Human resource strategy. A smooth transition to e-business is important. To prevent staff backlash, it is essential to have a human resource strategy in place to train or educate those staff members who are most affected by the new business processes. These staff will no longer process transactional requests; instead, they will focus on value-added activities such as counseling; making frontline policy decisions; and designing, testing, or enhancing Web-based systems. Frontline staff continue to be cross-trained as generalists in the other business areas that have an impact on registrar functions (i.e., Student Financials, Student Accounts Receivable, and Scholarships and Financial Aid). These units, in conjunction with the Office of the Registrar, have

developed an efficient yet comprehensive and intensive training program for frontline student service center staff. To assist staff in better understanding the PeopleSoft product, frontline service center staff rotate, answering the college and student PeopleSoft helpline. Because staff are certified on all of the one-stop functions, they are reclassified into the professional and academic job classification and their salaries increase from $26,000 to $30,000. To elevate the one-stop counselor position further, the Office of the Registrar requires that all individuals in these positions have a baccalaureate degree, which has not been the norm in past years. It is important to understand that turnover will likely be high in frontline staffing because of the demands of providing high-quality customer service. To combat this, it is advisable to have a buddy system in place for new staff and to have a short, intensive orientation and training program. Additionally, the university rotates topical specialists in Student Financials, Student Accounts Receivable, the Office of the Registrar, and Scholarships and Financial Aid at the front counters in the service centers.

Communication. As the Web project begins, it is important that the project goals be well defined and clearly stated for staff assigned to the project. This ensures that all project-related staff have a common goal, which allows the project to flow more smoothly and increases the likelihood of success. Holding a kickoff meeting to share the vision of the project as well as reviewing project goals for all staff involved eliminates confusion as the project develops. Project sponsors and leaders who are serving on steering committees as well as technical and functional staff should be included in the kickoff meeting. It is advantageous to use this meeting as an opportunity to establish communication ties between the project and the partner—this connection will be invaluable throughout the life of the project.

One of the next steps is to clearly define the roles and responsibilities for everyone involved in the project. For example, if a steering committee is formed, one of its responsibilities might be to deal with policy issues and related matters. These people must clearly understand that it is their responsibility to address these issues, or the project could be in jeopardy of not meeting its goals.

Simultaneous implementation. In hindsight, the university should have done a few project tasks differently during implementation. Described below are some of the lessons learned during the implementation of the e-business strategy. It is important to understand that the university was implementing a new student system at the same time as the e-business venture. If the software being implemented is stable and mature, simultaneous implementation can occur relatively easily and successfully. Simultaneous implementation at the University of Minnesota, however, was extremely challenging due to the immature nature of the PeopleSoft higher education product. Strong leadership and continuous communication can assist in the implementation.

First, the university chose the PeopleSoft student administration system, which was first released to the higher education community in January 1998. The product was so new that it made some Web development tasks very difficult. University Web developers and IBM did not have the functional or technical staff to ask functionality questions that came up during development. To compound this problem, there was not any formal training or documentation on the functionality of the PeopleSoft student system. All of the staff members were learning the system simultaneously, which made it difficult for Web developers who were writing code to meet specific and critical business process deadlines. Finally, the newness of the software and the limited understanding of its functionality made system testing critically important.

Second, the university decided to implement both the PeopleSoft system and the Web system in a phased approach instead of at once. The first go-live date was June 1998, and the last implementation target date was June 2000. This two-year implementation became very draining and stressful on staff in both functional and technical areas. The two-year timeline does not include the preplanning, vendor selection, and reengineering that began in 1996. Following is a list of a few of the initial details that should be defined before beginning a project:

- Synchronize project plans: the enterprise project, the university Web project, and the joint IBM and university Web project.
- Discuss project plans in detail with all relevant parties and/or project managers.
- Develop a strategy to communicate and document all project plan changes to all parties.

Project synchronization. As the e-business and student administration projects progressed, it became

increasingly clear to functional staff working on these projects that communication between the project managers was not adequate. Each project manager had his or her own timeline, which was not synchronized with the project plan. This disconnect resulted in problems for both testing and implementation. For example, the Web and enterprise teams needed to synchronize the implementation points for the simple reason that the Web cannot implement functionality unless the infrastructure is in place or is going live simultaneously. If the business owner had been included in the communications loop, this issue might have been avoided, or he or she could have at least followed up on the issue.

To further complicate issues, the university needed to make some modifications to the PeopleSoft software. Often, each modification caused problems for the Web developers working on specific online functionality. The enterprise project developers and the Web developers should have been in frequent contact with each other to ensure the progress of online functionality. To avoid the "us versus them" problems, project managers with strong communication skills were necessary. The project managers put processes in place to make certain that the Web developers would receive the code changes to the PeopleSoft software in a timely manner. Initially, however, the IBM developers did not have security access to the modification log housed at the university. These communication problems were further compounded by the fact that the Web developers were in Vancouver, Canada, and the enterprise project developers were in Minneapolis, Minnesota. It was obvious to business owners during project status meetings that the developers were not in sync or in communication with each other about the critical business timelines. This issue was resolved once all developers were located in Minneapolis and one project manager was assigned to the Web development project.

Key issues with noninstitutional partner developers include the following:

- Communicate a common goal and vision.
- Ensure that a communication strategy is in place for project staff.
- Define responsibilities and communicate them to all involved.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	○
One-Stop Service Centers	○
▪ Redesigned processes	○
▪ Generalists/Specialists	○
▪ Cross-functional teams	○
▪ Measurable outcomes	○
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	●
▪ Process oriented	●
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	○
Document Management	○
Back Office Process Redesign	●
Year Recognized	1996

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

- Identify who is responsible for training and documentation.
- Ensure that a knowledge transfer plan is in place when the project is complete.
- Move all developers to one location, if possible.

Roles of functional staff. There were also functional issues related to the project development. Functional staff need to communicate with the developers, other functional staff, the team leader, and the business owner. However, the expectations of the functional staff must also be realistic. Many of these staff do not have formal training in project implementation and need guidance and training as the project develops. In hindsight, it would have been beneficial to train functional staff in effective project management and communication.

The functional staff are an integral part of the implementation process. If the functional staff are good

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communicators, have positive attitudes, and are well respected, they will be key players in garnering support and buy-in from other office staff who may be threatened by a radical service transformation. A handful of enthusiastic and committed functional staff can assist tremendously in the acceptance of the product and the new way of conducting business. Functional staff may also solicit assistance from other office members to ensure that the product is meeting all expectations, which further commits individuals to the project. One example of this process is soliciting ideas from staff members regarding input to and design of reports necessary for a specific process. Another key role of the functional staff is to identify specific gaps in the project development and make them known via the established protocol. In addition, functional staff may identify processes that need to be reengineered to be more efficient. Writing test cases to "break" or identify bugs in the software is another critical responsibility of the functional staff. Once these scenarios or test cases are written, functional staff can enlist the help of other staff to test the system's response and functionality. An often-forgotten task of the functional staff is to write down process documentation and, if needed, facilitate training on the new system. As is evident from the different roles the functional staff play in implementing an enterprise project, these people develop a solid understanding of the business process and become an essential part of the project's success.

Coordination among functional and technical staff. The technical staff address similar issues to those of the functional staff. The biggest difference is that they might not understand the business process completely or all of the nuances associated with the process. These individuals are trained developers who can design solutions to the ideas generated and issues that arise throughout the implementation process. Some universities have located developers within the business owner's office. This was not the case at the University of Minnesota. The university's organizational structure already had an established Office of Information Technology that housed all technical staff. Regardless of their physical location or reporting lines, the functional and technical staff must function as a single entity during the project. At the University of Minnesota, all technical and functional staff from the institution, as well as IBM, were relocated to one on-campus office location where they could easily address issues with each other as they arose during implementation.

Staff retention. During a project of this magnitude, staff retention becomes an important issue. If a developer leaves during the project, his or her exodus is bound to slow progress. Staff departures inevitably happen, but keeping this to a minimum is critical for successful implementation. Recruiting staff can also be a challenge if the university's salary range is below market value. The University of Minnesota had to make several retention offers throughout the duration of the project to keep key technical and functional staff on board. In addition to retention offers, the project managers provided other rewards, such as the following:

- A "day off" coupon that staff could use without taking a vacation day
- Gift certificates to local restaurants, bookstores, and grocery stores
- Frequent small celebrations for team members involved in a "quick win" and larger celebrations for the whole project team when they met milestones

If the system was unavailable for an implementation point, all staff were encouraged to take the day off—without using a vacation day. Also, all staff received an Office of the Registrar canvas briefcase and a travel mug. To assist with the transition back from the project—when many staff were out of their regular office space—staff were treated to lunch the day after they returned to their original offices. Although these were small tokens of appreciation, staff enjoyed them tremendously and they helped boost morale.

Technical issues. When implementing new student administration software simultaneously with an e-business solution, numerous issues may arise. Following are some of the technical issues that the University of Minnesota encountered:

- Problem tracking documentation follow-through and communication between all staff involved is essential.
- Interface development between systems must be defined and understood by all staff. If the Web system directly interacts with the PeopleSoft system, the information being updated must have an audit trail and be thoroughly tested for accuracy.

- Modifications or customizations to underlying systems affect the Web system, too. Simple modifications such as table changes can dramatically change Web functionality.
- Defining all reporting requirements well in advance is critical during development.
- Addressing hardware and software issues or limitations in advance is critical for a successful implementation.
- Addressing printer capabilities and browser limitations helps eliminate some problems during implementation and rollout.

The potential pieces that will affect the Web front end need to be identified, listed, and addressed. For example, if the Web system is the front end to a vendor package (e.g., PeopleSoft), it is necessary to synchronize upgrades, maintenance, and bug fixes made to the vendor software. If the system and the vendor package are not synchronized, Web functionality will not match that of the vendor. Technical issues pertaining to hardware, network requirements, infrastructure, security, browser differences, stress testing, and system recovery or backups must be in place and documented. The database administrator must understand the importance of maintaining system stability. If the system is continually unstable, users will lose confidence and probably choose a different method for conducting their business. System performance is a vital measure of success; if the system looks and works great for only one user at a time, then the project has failed.

The university used various methods of system testing. When the system went live with Web registration, only 200 users could access the system simultaneously without crashing it. Due to the sheer volume of students, accommodating 200 concurrent users was not adequate and the issue was addressed immediately. Project staff ran several automated system-load tests with promising results, but the system did not perform as the test results indicated. In addition to system load issues, browser upgrades often can have an impact upon the designed functionality. It is important to have a testing plan designed and in place to address these changes or various indirect factors that may influence Web functionality. Different browsers may cause functionality to "act" differently so it is advisable to experiment with all of the university's recommended browsers during testing.

Contingency plans. While planning for the system implementation, it is a good idea to have a contingency plan in place. If the system is going to be used for a business process such as registration and an unexpected issue arises, a strategy must be in place to address it immediately. The first step is to communicate to the student population in advance about the changes in the business processes. First, ask students to be patient as there may be some problems. Second, provide students with alternative methods for processing their business and ask them to check communication avenues (e.g., e-mail or the student newspaper) if problems occur. Third, as the business owner, have a contingency in place just to be safe. For example, if a problem occurs with Web registration, staff can manually process student registrations until the problem is fixed. Fourth, have developers monitor the system and be on call to address any issues that arise. Finally, celebrate successes.

Product introduction. The institution must decide on a communication strategy for introducing the Web product or service transformation. It is important to solicit input from the stakeholders while updating them on the progress of the project because these individuals can assist in solving problems or addressing concerns throughout the project. Communicating with the student population is also essential. A few different avenues are available for communicating with students, and the one you choose might depend on how the project development is progressing. For example, with Web registration, one avenue is to let students hear of this wonderful tool by word of mouth. This is especially effective if the current business process in place is not changing immediately because it allows bugs to be worked out and the opportunity to monitor how the system performs before most students start using it. Another option is to inform students that all registrations must be completed via the Web, unless there are problems. It is good practice to inform students of the backup plan, as well as where they can send feedback about the new process and product. If decided in advance and planned for accordingly, either direct or indirect communication is effective and most students accept the change easily.

Maintenance. Another critical issue to address during project implementation is how maintenance will occur. With any new development, bugs have to be fixed or enhancements have to take place. It is always more interesting to work on new developments than to do

maintenance, but maintaining a product is equally important to its success and stability. System development always requires maintenance and necessary steps must be taken to guarantee that it occurs in a timely fashion. To this end, there must be a clear (preferably written) understanding of how the system will be maintained between development and the business owner. It is equally as important that the Web-based services keep pace with new developments in Web technology. If not, the system will soon become obsolete and cumbersome to the users. As the implementation deadline draws near, it is important to be aware that original functionality may be delayed to accommodate the deadline. To ensure that this functionality is not lost, it is advisable to assign it to a future implementation date—doing so will establish accountability for all parties involved.

Training/support. The role of training or help-page information for the functionality developed is another important consideration. Throughout development, it is beneficial to ask frequently, "What questions will be asked regarding this piece of functionality?" Ideally, the system should be user-friendly so that no training or help-page information is necessary and the system as designed makes sense to the users. The University of Minnesota did not anticipate the one area that caused the most difficulty for new users: the difference in terminology used for data elements between the old and new systems. The project steering committee decided that the university community would adopt the PeopleSoft terminology. The university's Web director, however, argued that students would not understand the new terminology and that the Web design should use student-friendly wording. IBM and university Web development staff did not see eye to eye on this issue either. To resolve this argument, it was decided that the Web system would have both the old and new terminology. For example PeopleSoft refers to a "major" (for example, biology) as a "plan" because the table where these values are stored is used for several purposes. In the previous system, and in publications, the university also used the word "major." The Web system, therefore, shows the field as "plan (major)—biology."

Critical Success Factors

The University of Minnesota experienced several peaks and valleys during the implementation of the e-business strategy and the student administration system replacement. Staff questioned the worth of the project numerous times due to various obstacles that emerged. Even after the initial implementation, staff still questioned the worth of the e-business strategy, particularly due to problems with system performance. As we mentioned previously, at the initial go-live point, the system could only handle 200 simultaneous users. In addition, processing time per transaction ranged between 10 seconds and 15 minutes, which, of course, was unacceptable. When addressed, the system could successfully manage 500-plus concurrent users and time per transaction dropped to three from 10 seconds. The technical staff have addressed many of the initial bugs, completed performance tuning, and enhanced the user-friendliness of the system. The e-business strategy has been extremely successful for the university, as students have taken ownership of processes that affect them. Approximately 92 percent of the student population register themselves via the Web, and the university receives millions of hits per month on its one-stop page (*onestop.umn.edu/*).

The e-business strategy has freed up staff time, allowing the in-person service centers to increase their services by responding to students' faxed and mailed registration requests. Staff are also able to engage in thorough problem solving for students because the long lines of students waiting in the service centers are gone. Many students have complimented the university for listening to and addressing their needs related to Web technology. Students who visit the service centers are pleased with the responsiveness and the professionalism of the staff. Moreover, the administration is pleased with the wider university's acceptance of the enterprise system.

Finally, as the project nears completion, successful knowledge transfer from the business partner to the university staff is essential. This will enable the institution to fix bugs and enhance the system design at a rapid pace, instead of having to relearn how to do these things. Some vital pieces are inevitably forgotten during the transition, partly because documentation always lags behind in the development of a project, but by forming a successful partnership the institution can call upon the consultant for future assistance.

Conclusion

The vision for student services at the University of Minnesota is clearly defined and continues to take great

strides forward; however, there is never enough time to accomplish everything in the vision. Implementing a student administration system while simultaneously developing a Web front end designed to provide seamless service to students is very challenging and complex. If the software for the student administration system is stable and mature, simultaneous implementation is very possible; however, if it is not mature and stable, strong leadership is necessary to make the project a success. It is important to remember that the e-business strategy is not completed when the project is fully implemented—it requires regular maintenance and enhancements. The University of Minnesota has an ongoing committee that continues to examine the one-stop services. Additionally, the Web Development Team has an advisory team that includes the university registrar as a member. To address maintenance issues such as institutional policy changes and product enhancements, several members of the Office of the Registrar meet biweekly with members of the Web Development Team. These changes must occur in a timely fashion, so it is important to have both a plan and the appropriate resources in place.

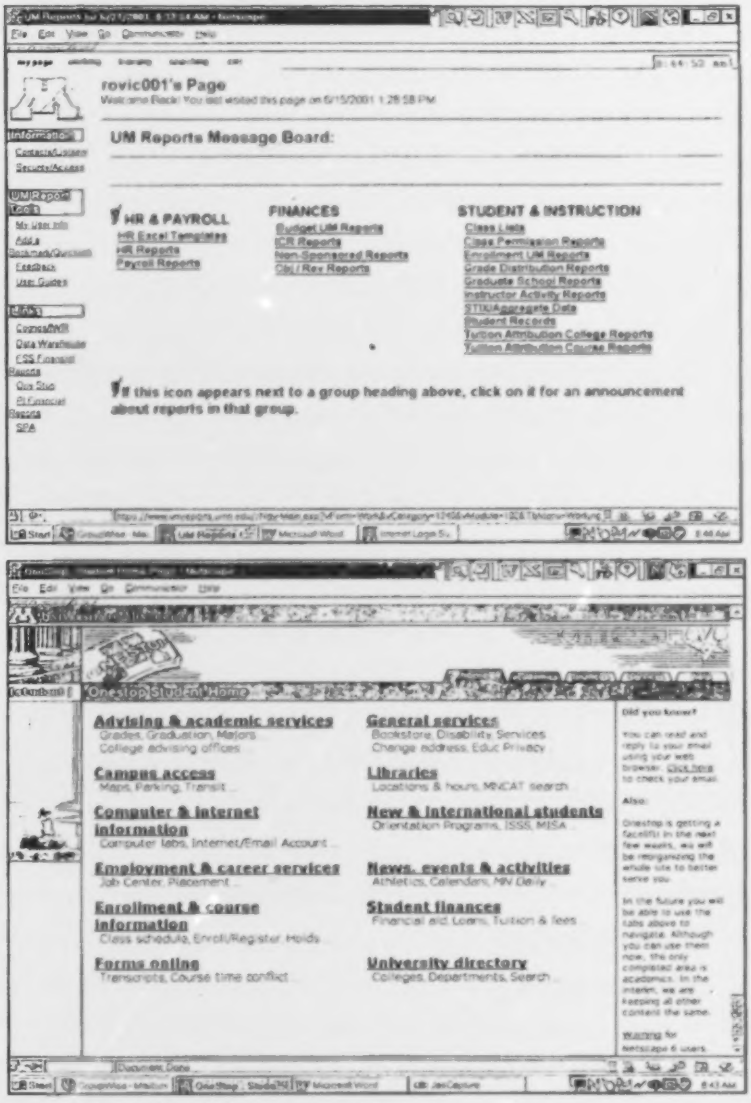

Figure 12.1 Added Web Functionality

At the University of Minnesota, the impending pressure of Y2K made meeting the established timelines essential. To this end, project staff worked well over 40 hours per week and most holidays to ensure successful implementation for the university community. Without their dedication, the project would have failed. Project staff maintained very positive attitudes and learned the importance of frequent laughter. Throughout the course of the project, staff often said that if they weren't laughing they would be crying. Project leadership staff were integral to staff morale. They understood the project pressures and assisted project staff in effectively handling those pressures. Many of the implementation points were rough, but the teams addressed the problems immediately, knowing that the project's success depended on resolution of issues. The university established and communicated a human resources plan to help quell affected staff members' fears about becoming obsolete due to the Web-based technology.

The university continues to enhance the seamless student services model by adding functionality to the Web (see Figure 12.1). For example, in July 2001, the Office of Scholarships and Financial Aid, in conjunction with the U.S. Department of Education, created one of

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the first paperless financial aid offices in the country. Several other projects are on the list to continue improving processes for students, faculty, and staff.

The university has also established an Office of Classroom Management as the one stop for faculty and staff regarding classroom issues. This office was established in 1999 to improve the university's learning environment and better manage its classrooms. The objective was to create a single point of contact for service for faculty and staff (*www.classroom.umn.edu*).

These examples are only a fraction of what the university continues to focus on in order to provide better Web-based services for the university community. The enterprise project has allowed the university to rethink its processes and move forward with a new way of doing business. To further improve on-campus service offerings, the university continues to enhance the three one-stop locations on the Twin Cities campus. The service centers are generally open from 8:00 AM to 5:30 PM, Monday through Thursday and from 8:00 AM to 4:00 PM on Friday. Each of the campus banks has a one-stop center to assist students with business transactions, problems, and issues. As the university implemented the e-business strategy, many staff members were retrained on new business processes. As staff members become more comfortable and familiar with the new student administration system, they are cross-trained in other offices' functions. The staff members working at the front counter are experts in their office functions and generalists in other office functions. Offices have been able to assist each other through the various student administration implementation points, making the quality of service excellent even during the transition period. You can visit the main on-campus one-stop service center using the Web camera located at *www1.umn.edu/registrar/fraser_webcam.html*. The staff in the back offices (not on the implementation team) play a key role in making an implementation or project development successful. It is important that they be recognized.

As the student administration system bugs are fixed, the Web-enabled services are enhanced, and the staff are crossed trained, there will be a significant cost savings. Staffing at the front counters can be reduced as efficiencies are developed, and the staff processing transactions can be eliminated as different workflow is developed.

The university has also implemented a one-stop telephone line that includes a menu of options for students. Students need only remember one telephone number (612-624-1111) to connect themselves to the key offices on campus, and they have found this to be very informative and helpful. At orientation, they receive the number on a business card that looks like a one-stop ticket (see Figure 12.2). In addition to the phone number, the lists the one-stop URL and on-campus one-stop locations. The university has embraced this concept as the student's ticket to service—any place or time. When students see the ticket theme, they know that the information is associated with the one-stop concept at the university. This has improved communication to university students.

The University of Minnesota is committed to further enhancing the services available using the e-business

University of Minnesota

The University of Minnesota was founded in 1851, seven years before Minnesota gained statehood, as a preparatory school and the first land-grant institution west of the Mississippi. It closed during the Civil War and did not reopen until 1867. Two years later, it expanded beyond its preparatory role and reorganized as a higher education institution.

It is now one of the most comprehensive institutions in the nation and currently ranks among the top 25 public research institutions. Combined enrollment for its four campuses—Twin Cities, Duluth, Morris, and Crookston—is approximately 59,000 students, with more than 35,000 undergraduates. The main Twin Cities campus is located in Minneapolis-St. Paul and boasts 20 colleges that offer 161 bachelor's degrees, 218 master's degrees, 114 doctoral degrees, and five professional degrees. More than 10,000 degrees are awarded annually.

The institution's guiding principles are as follows:

- That all people are enriched by understanding and, to this end, the university is dedicated to the advancement of learning and the search for truth
- To share this knowledge through education for a diverse community
- To apply this knowledge to benefit the people of the state, the nation, and the world

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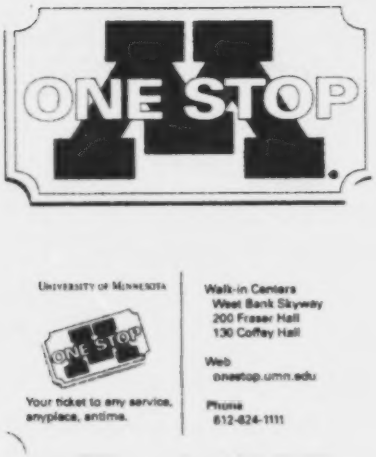

Figure 12.2 Business Card With Student Services Center Information

strategy. By continuing to improve upon current offerings and staying attuned to technological advancements, it will improve service to all members of the university community.

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13

Carnegie Mellon University

Five Years Later: Maintaining Strategic Focus

Linda M. Anderson

Overview and Project Summary

It has been five years since Enrollment Services at Carnegie Mellon University was created. We have experienced tremendous growth in the evolution of team culture, a customer service focus, and the depth and breadth of expertise as a student services organization.

This chapter chronicles our evolution as individuals, teams, and an organization. It also addresses enrollment processes, technology enhancements, and leadership challenges. Reflections on Carnegie Mellon's tangible and intangible growth experiences may help other colleges and universities optimize the growth of their service organizations as they reengineer and redesign processes as well as organizations in pursuit of satisfying the needs of each customer.

The reengineering of Enrollment Services has represented transformational rather than incremental change for our staff, organization, and institution. It has had tremendous impact on people, processes, and technology:

- We experienced dramatic learning curves during the first year of implementation and have learned that continuous training is crucial.
- One of our greatest challenges was how to address the lack of the traditional supervisory relationships within our new flattened organization and to enable groups to evolve into self-directed work teams.
- Technology has eliminated routine transactions, released staff time to focus on problem solving, and increased levels of customer servicing expectations.
- New types of leaders within our organization have developed. They have become responsible for teaching and learning, and enabling groups to identify and solve problems.

Compelling Case for Change

The research done by a core team in 1994 resulted in the following evaluation:

> During the enrollment process, students usually required information from the Registrar, Financial Aid and Cashier, or they visited the incorrect office and were referred to multiple offices. Systems support and policy in 1994 did not allow for student self enrollment. The processes were paper intensive, relied heavily on mail and walk-in visits, and required excessive sign-off and controls. In fiscal year 1994, the financial aid expenditures exceeded budget by approximately $1.8 million, and student receivables continued to exceed desired levels.

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Beginning in fall 1994, Carnegie Mellon began a reengineering project to review our university enrollment process. This review revealed three interdependent enrollment processes—registration, financial aid, and billing and collections—that were fragmented, inconvenient, time consuming, bureaucratic, labor intensive, prone to error, and inconsistent across colleges.

This review led to the creation of the Enrollment Process Re-Design Team (EPRT) in the spring of 1995. The following EPRT project recommendations emerged:

- Create a zero-stop enrollment environment for students to complete the enrollment process, and where problems occur, allow students one-stop problem resolution.
- Significantly improve student satisfaction with administrative support services.
- Achieve a leadership position in enrollment services by coupling the reorganization of Enrollment Services with technological enhancements.
- Improve employee satisfaction by equipping employees to serve our students more effectively.
- "Catch up" with other institutions in terms of the use of technology to serve students better in the enrollment process.

To respond to these recommendations, the EPRT, with the input of additional focus groups, identified the following as critical student requirements in the redesign of the enrollment process:

- Recognition of the student as a responsible participant
- Consistency of student enrollment process across the university
- Establishment of clear and consistent decision rules
- Ability of students to enter their enrollment data directly
- Ability of students to access their enrollment data directly
- Convenience of student enrollment process
- Delivery of timely and accurate student enrollment information
- Process design that would provide accessible and meaningful advising
- Process design that would provide financial counseling
- Process design that would improve the student account invoicing process
- Availability of decision support tools

These student requirements continue to guide us in our decision making and initiatives related to our overall goal of improving student satisfaction and services.

Design of the Organization

Understanding our organizational structure helps to clarify the issues, challenges, and opportunities at Carnegie Mellon. Figure 13.1 depicts how Enrollment Services is organized. The design and creation of this model were based upon the integration of the freshman financial aid process into the Office of Admission and the simultaneous automation of financial aid packaging and outsourcing of financial payment counseling. The Office of Admission focuses on the comprehensive enrollment needs of prospective students. Enrollment Services focuses on the enrollment processes of matriculated first-year students, returning upper-class students, and graduate students. When a prospective student matriculates, his or her academic and financial records and all student-servicing requirements move into Enrollment Services.

The HUB is our student-servicing center and front door for enrolled students and their parents. Our eight enrollment services counselors are total enrollment resolution counselors. They not only deal with transactions such as receiving student account payments, but they also respond to complicated parental and student inquiries, such as short- and long-term financing options.

We are organized by enrollment function, as shown in Figure 13.1, and currently have 38 staff positions, whose responsibilities are shown in Figure 13.2. Our program administrators would be classified as associate directors in a traditional college office environment. They are responsible for the administration of university, federal, state, and university-related academic and financial student enrollment programs. Our database coordinators perform a diverse set of student enrollment data retrievals, test and release new screen functionality within our student information system, and monitor database production programs. Our assistants perform a

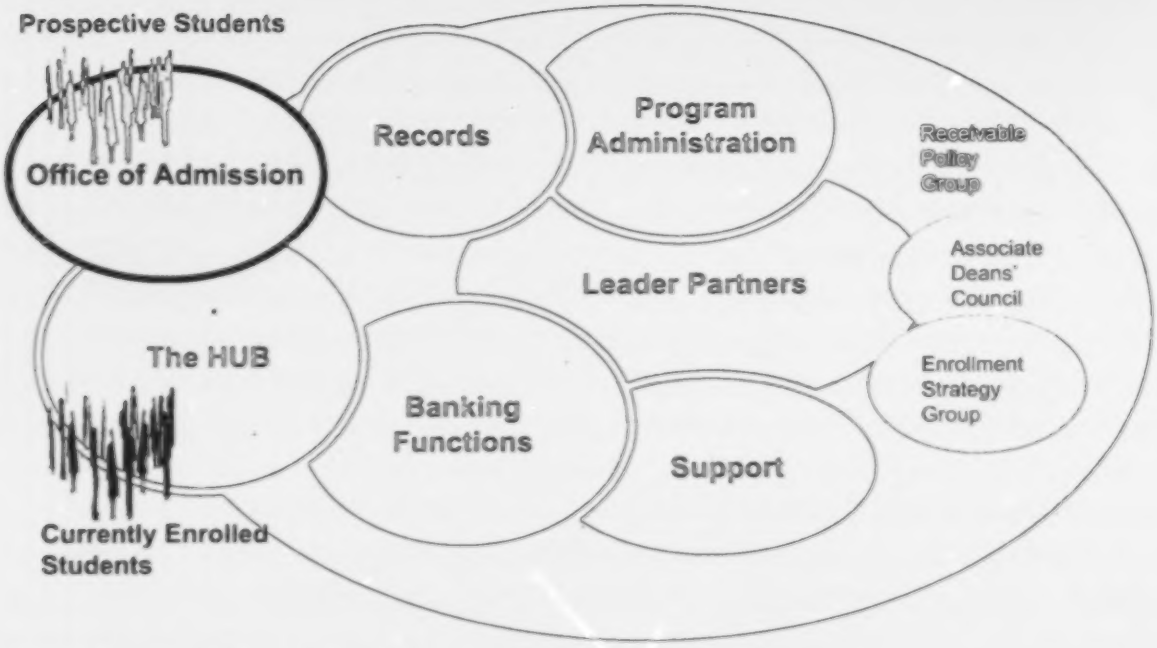

Figure 13.1 Enrollment Services and Admission Organization

wide variety of administrative support functions in the records, communications, process support, and student account teams.

We have created a framework for collaborative and creative problem solving. Our flattened organization does not have the traditional hierarchical reporting structure or supervisors. This organizational design supports our strategy, which is to focus on customer requirements, i.e., the student enrollment process, not the structure. The flattened structure eliminated the departmental boundaries that typically exist between the offices of the registrar, financial aid, and the cashier. Problem solving is no longer a departmental process. We are organized by function with an outward, customer service orientation in student service delivery and will continue to evolve as self-directed work teams. Our

Enrollment Function	Responsibility	Position Title	Number of Staff
Enrollment counselor	Student service	Enrollment services counselor	9
Program administrator	Financial aid	Program administrator	3
	Course and room scheduling	Program administrator	1
	Communications	Program administrator	1
	Records management	Program administrator	1
Records	Records	Records assistant	3
Student accounts	Account reconciliation and receivables	Program administrator	4
	Student accounts	Student accounts assistant	1
Support	Process support	Process support assistant	4
	Information and data support	Information and database coordinator	2
	Information and data support	Information and database assistant	5
	Communications	Communication assistant	2
Lead and direct	Leaders	Leader/director	2

Figure 13.2 Composition of Enrollment Services

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infrastructure enables us to focus on continuous enrollment process improvement thanks to automated processing, Web services, and Web-enabled processing.

Year One: Transition, Definition, and Survival

To understand our first year's experience, it's important to understand what transpired during 1995–1996. Processes were being realigned, and, therefore, staff were realigned. The Enrollment Services Process Reengineering Implementation Team (ESPRIT) had several initiatives under way to ensure that Enrollment Services would become a reality on July 1, 1996. One of those initiatives was to define each of the planned 42 positions and to create a position description form for each.

We were fortunate to have an experienced human resource specialist on ESPRIT. She ensured that staff who were affected received career counseling, including skills inventory, resume preparation and production, and interviewing techniques, in order to apply for a redefined position in the new organization. Our vice president for enrollment continually reinforced his commitment that each staff member would be guaranteed a position within Enrollment Services—no one would step down from a current salary level or be laid off. During spring 1996, the vice president for enrollment and our human resource specialist began to interview each staff member. All 42 staff members within the affected offices were interviewed. By April, all of the selections were made.

The staff experience. Our first year's experiences are vivid. They reflect the typical human reactions to transformational change: uncertainty, fear, anxiety, and frustration. Many were concerned with the loss of power, position, knowledge, and control. Sixty percent of our staff would find themselves in new positions, and 60 percent of those positions would be new. Expressions of frustration became a daily occurrence as staff experienced dramatic learning curves. Many staff found themselves immediately accountable for teaching their teammates. Although processes might be in the midst of change, staff would nevertheless need to document them in great detail in order to pass concepts, knowledge, and perspectives on to teammates. The frustration was exacerbated by the fact that, although team members had equal responsibilities and equal status, they might possess unequal skills and experience. Structured group and team transition meetings were designed to identify each staff member's required tasks, responsibilities, and items for which they were accountable. This was accompanied by the training needed for success.

As a result, we found ourselves in a continuous teaching and learning mode as well as in a continuous problem identification and resolution process for Enrollment Services. A few of our staff members chose to leave the new organization. We understood that our change effort might result in a loss of staff. They articulated their reasons as follows:

- Inability to adjust to the loss of comfort and security of their previous departmental position
- Preference to work in a traditional environment, with well-defined hierarchies, boundaries, supervisors, and rules
- Preference for a position that another staff member received
- Preference to have a direct supervisor
- Inability to work in a team environment
- Discomfort with the level of inquiry and evaluation needed to initiate and support enrollment process improvements
- Belief that the new organization would not succeed

The HUB experience. The HUB, our student-servicing center, was created in August of 1995, one year before Enrollment Services was created. It became operational while the traditional offices of the registrar, financial aid, cashier, and ID card center were still operating. When the reorganization occurred in July 1996, several of our original Enrollment Services counselors became program administrators. New counselors were hired in the HUB while the counselors who became program administrators made the transition into their new positions within enrollment services.

Our counselors are generalists who have specializations based on expertise. They learned that they would have to rely on each other for knowledge and advice. As a self-directing team, they develop their daily operational schedules, with some scheduled at the front counter or on the phone, some responding to e-mail, and some serving as representatives from the HUB on various enrollment services projects.

If staff outside the HUB received student phone calls, the objective was to respond to student and parental inquires, not to immediately refer the call to the HUB. Although our intent was to deal with calls as they

came in, we also explained to the customer that they could call the HUB in the future to get answers to their questions. We greatly underestimated the number and volume of phone calls, not realizing that 20 percent of all student inquiries were being made directly to these existing offices instead of to the HUB.

When we eliminated these offices in August 1996, all calls came to the HUB. During that week of freshman orientation, we experienced excessive in-person lines and phone calls. Therefore, we temporarily enlisted other staff within Enrollment Services to help our counselors in the HUB. During that first year, our HUB enrollment counselors faced multiple simultaneous challenges: a new work environment, new team members, team growth, and many customers in phone and physical queues. They were handling many routine transactions due to the fact that we had not yet developed Web-based course registration or change of address and enrollment verification.

The team experience. We began as groups of people trying to determine the required tasks for each process and learning that each team was dynamically linked to the next one. We quickly learned that any single enrollment process failure affects counselors in the HUB because they receive customer inquiries and complaints. The challenge was for teams to understand their interdependence—each is responsible for the success of the next team.

By the end of the first year we had formed our enrollment process subgroup, which was comprised of representatives from each of our teams. The subgroup ensured that the enrollment process had the buy-in of the respective team and that we did not overlook a critical data point, communication piece, or a service critical for success. This group remains intact after five years and has grown to understand the importance of the linkage between each of the following enrollment process steps:

- Semester student record creation
- Accessible, timely, and accurate schedule of classes online
- Online registration availability and accessibility
- Tuition assessment
- Financial aid eligibility and financing options
- Monthly and semester billing
- Official and conditional enrollment procedures
- Administrative withdrawal process

The organization experience. Our identity and image were created during the tumultuous 1996–97 year. Students were confused at the beginning, and upper-class students, who were used to visiting one person in each of the traditional offices, had to become familiar with the new organization. Our directory contained different wording to describe our job functions. Therefore, others on campus were confused as they tried to understand whom to contact for which service. As we were teaching students and parents who we were, we were teaching academic departmental administrators and faculty at the same time. However, freshmen were quick to learn that the HUB was where their enrollment concerns would be addressed.

The main challenge for staff was to learn how best to handle our responsibilities from the past while simultaneously training each other and learning our new responsibilities. This consumed significant time and energy. This learning involved basic skills and tasks. We were just beginning to understand that the student enrollment process was comprised of interwoven functions and subprocesses and its overall success was dependent upon the successful design and delivery of each subprocess.

The leadership experience. In the first year, staff were given as much definition as they needed to perform their jobs. Identifying and teaching very specific tasks was the first step in providing staff with needed confidence, and it took the entire year. We managed the loss of staff. While many would say that we did not progress much during the first year, in retrospect, a different type of intangible growth had been achieved. A new cultural perspective was growing from both a human resource perspective and a process improvement perspective.

We were simultaneously managing and leading this change effort in the first year. It was necessary to participate actively in some of the operational planning aspects in order to understand the customer and staff obstacles. Especially important was the synthesis of staff input to produce our vision statement. Helping our vision to become reality with strategies, daily plans, and communications were critical objectives.

Achievements. In retrospect, there were a number of accomplishments in 1996–97:

- Improved student account invoice selection and production
- Online student information (viewing student information)
- Online academic record request (ordering unofficial transcripts)
- New university ID card (enabling multifunction usage)
- Pilot of electronic grades submission
- Pilot of online registration
- Pilot of ad hoc query database capability
- Development of an employee satisfaction survey
- Development of our mission, vision, and values
- Development of a staff performance evaluation form

Years Two and Three: Stabilization and Team Search for Identity

The staff experience. During our second year, staff members began to demonstrate an increased level of confidence in their work. Training and professional development initiatives were structured into weekly meeting agendas and included not only specific task and regulatory training, but also sessions on customer service. We began a tradition of annual team retreats, which addressed the challenges and successes of the year.

The team experience. The natural consequence of individual growth and confidence is competition. Healthy competition among team members motivates creativity. Common to most businesses and institutions of higher education has been a reward and recognition system, which places primary value on individual achievements. Teams were learning that we had replaced this value system with one that would simultaneously recognize both the individual and team efforts and achievements. Operating effectively without a designated team leader was also challenging.

The organization experience. A committee comprised of several representatives from each team continued to refine the mission, vision, and values statement we created at the end of 1996–1997. The final mission, vision, and values statement reads as follows:

> Our vision is to be a unified service organization, which continues to pioneer and deliver innovative enrollment services through empowered staff. Our mission is to provide services which:
>
> - Facilitate student enrollment
> - Guide students and families as administrative and financial partners
> - Support university academic and administrative activities
> - Fulfill the requirements of our external customers
> - Emphasize commitment and professional development among our staff
>
> We value accountability, approachability, dedication, integrity, outreach, reliability, teamwork, and tenacity.

Team retreats continued. The retreat agendas focused on developing an understanding of our Enrollment Services strategic plan, the development of the protocol to be used with customers, image development, understanding customer servicing issues through role playing, the development of team behaviors, improving communications within the team and among the teams, and the identification of team goals and milestones.

It was becoming increasing clear that out new team environment was creating new challenges. The vice president for enrollment and vice president for business affairs and planning enlisted the help of a consulting firm to provide us with the training needed to succeed and to optimize our levels of productivity. This Star Performer "Breakthrough Program," based upon the research of Robert Kelley, professor and lecturer at Carnegie Mellon, taught us the nine work strategies of star performers.

Kelley's research identified that the real differences between star performers and middle managers are in the *ways* top performers do their jobs. His research also demonstrated that productivity depends on the ability to channel one's expertise, creativity, and insight into work with other professionals. Taking initiative is the core strategy in this model. The model's second layer includes the following work strategies: networking, self-management, perspective, "followership," teamwork effectiveness, and leadership. (Followership, as defined by Kelley, assists and supports the leader in accomplishing organizational goals, thinks and acts independently rather than relying solely on the leader's direction, and

positively and actively engages in making the organization a success.) Organizational savvy and presentation skills make up the third layer of work strategies. This training helped us understand these nine work strategies, how to apply these strategies to our work environment, and how to improve our individual and collective productivity as we worked on multiple teams focused on improving enrollment processes and customer service.

By the end of our second year, our program administrators and counselors in the HUB had participated in this training. It broadened our perspectives and, for several, helped us modify our behaviors. We continue to incorporate modules of this training into our annual retreat agendas, with an emphasis on followership, leadership, and perspective.

Our internal committee refined our performance evaluation form. The leaders/directors of Enrollment Services used it to conduct biannual performance evaluations with staff and as an opportunity to solicit staff feedback and set goals.

The leadership experience. We found that an increasing amount of our time, planning, and direction was focused on understanding the needs of the individual within a team and helping staff understand how their behaviors aligned with our values. We also focused on defining and understanding how best to deliver customer service.

Achievements. Our achievements during this time included the following:

- Implementation of an automatic student employment authorization process
- Online student registration, which eliminated foot traffic to the HUB and data entry for our information and data support team
- Electronic grade submission, which eliminated the use of scanners
- Availability of faculty online course roster
- Standardization of university registration policies across all colleges and departments
- Query access by academic departments to the student information system
- Student address changes online
- Student graduation application online
- Departmental graduation review and certification online
- Automated federal Stafford and PLUS Loan certifications
- Automated federal Stafford and PLUS Loan postings to student accounts

Years Four and Five: Growth of Technology Initiatives, Increased Focus on the Team and the Customer

The team experience. We witnessed an increase in depth and breadth of skills, expertise, and perspectives on the part of staff and teams in the last three years. We attribute this to an aggressive schedule of training and an organization committed to learning and to the delivery of services to students. As staff understanding of our vision and mission increased, we experienced the growth of process improvements and technology initiatives and an increase in groups moving into the next phase of team development.

An example of a team that has experienced this growth of skills and perspective was our receivables policy group. In operation for five years, it is comprised of members from Enrollment Services and our financial services group. Its objective is to understand the current and delinquent student accounts data as well as the impact of the enrollment process on student accounts receivable. One of our enrollment process redesign objectives was to maximize cash flow to the university and realize a reduction in our student receivable amount. It has taken a long time to define the data we need to understand the receivables. During the last two years we began to ask questions to understand the effect of enrollment processes on the receivables. The group has struggled with the conflict between a "collection" perspective and an "enrollment" perspective. The Enrollment Services goal is to enable students to remain enrolled, and complete their educational objectives, by letting them make the necessary arrangements for timely payment. Success is based upon the interdependency of the following processes:

- Communication to students and parents via Web sites, paper, e-mail, and outgoing phone calls to educate them about the enrollment process
- Standardization and automation of needs analysis and financial aid packaging
- Earlier time frame to deliver financial aid award notification to families

- Earlier time frame to deliver financing solutions/alternatives to families
- In-house and outsourced financing discussions
- Accurate and timely tuition assessment
- Accurate and timely monthly and semester billing process
- Follow-up by Enrollment Services counselors with students who owe money
- Restriction on registration for upcoming semester if students owe money
- University policy for student account payments, collections, and financial suspensions
- Knowing when to follow standard policy and when to make exceptions
- Support and buy-in of upper levels of management

We are fortunate to have a healthy relationship with our colleagues in the financial services group. With their many contributions and perspectives, we have learned how to manage, understand, and collect the receivables. Within Enrollment Services, we communicate to all staff that we all own the solution to reducing the receivables in a responsive and responsible way. The development of a student account and receivable policy does not have to be exclusive of the student enrollment philosophy. We have found that compliance with federal and cash management regulations and guidelines can be accomplished while successfully meeting the informational, servicing, and student enrollment requirements of students, parents, and the university.

We were able to move toward this new paradigm through the following:

- The review of student enrollment data for enrolled and delinquent students, by college and program, at intervals within the enrollment process, to understand how and when students pay and any specific departmental profile
- Collaborative discussions with fiscal and administrative departments across campus who share in the accountability for both student enrollment and account policies
- Education of students, parents, and administrative departments about the enrollment process, payment alternatives, and timelines
- The elimination of an administrative withdraw process that withdrew students who were registered for courses but who did not make arrangements for payment by the designated timeline (This process was replaced by direct counselor follow-up with students to discuss financing options.)
- The systematic review of students who had credit balances
- The design and implementation of an automatic student account refund process

The organization and leadership experience. Our organization is lean and comprised of energetic, committed, enthusiastic, and talented knowledge workers who have high levels of autonomy. However, talent can move in different directions. We found the need to modify our performance evaluation process into a performance management process. The new process emphasizes the relationship of the individual to the team and links the organizational vision and values to the measurement of behaviors required for success. It also provided the following:

- More definition to measurements of individual and team expectations and requirements
- Increased focus on the expectations of each team
- Increased focus on this as a process and not as an annual event
- More operational definition of that which is contained in the staff member's position description form

The performance evaluation form also changed into a performance management review form, which contains performance objectives that address and evaluate the major objectives as listed in the staff member's position description form. The form also contains key performance competencies, which are considered to be the core competencies for success. They are the same for every staff member in enrollment services:

- *Customer service.* Serving our customers and helping others in support of organizational goals
- *Teamwork.* Contributing to group performance to meet organizational objectives
- *Initiative.* Taking action to meet work-related objectives without being asked or required to do so

- *Communication.* Speaking effectively in individual or group situations; listening actively; writing clearly and convincingly; taking responsibility for facilitating information exchange among subordinates, peers, and managers
- *Problem solving.* Committing to owning and resolving problems to advance our organization's mission

The individual and team developmental plans, which encompass individual goals and team goals, are equally important.

In addition to our focus on the individual's behaviors and success within the team, we are also focused on the design of our customer service theme. This has been modeled after the Service Matrix presented by Disney Institute. We gathered the input of all of Enrollment Services staff members and created the following definitions:

- *Quality service.* Exceeding student expectations by paying attention to detail. We create satisfaction by providing the finest enrollment services for students, families, and alumni.
- *Service standards.* Accuracy, professionalism, fairness, and efficiency.

Thus we created a matrix that is linked to our mission, vision, and values. The service matrix has helped us to create our customer-servicing image and to make better decisions when providing customer service to students and parents.

After five years of focusing on the delivery of student enrollment services, in 2001 we began to address the servicing requirements of other constituencies. The informational and servicing requirements of parents and graduate students differ substantially from those of undergraduate students. We have made significant progress with identifying and understanding graduate students' requirements. Our Enrollment Services counselors can now respond to diverse types of graduate student enrollment inquiries. Planning for 2002 focuses on understanding the requirements of parents.

Achievements. Our achievements during this time included the following:

- Enrollment verifications online
- Student information online improvements, including display of financial aid documents and awards, view of student course registration history (dates of course drops), view of Hope and Life Time Learning Tax credit data, and federal student loan entrance and exit interviews online
- Web access to allow departments to see classroom availability
- Resource 25 room scheduler with Web access
- Online real-time schedule of classes
- Course information online that provides students with course descriptions, prerequisites and checks to see if students have met the prerequisites, and space availability
- Academic audit online phased implementation
- All Enrollment Services forms online (downloadable and printable)
- Phase one of automated student account refund check production
- Expansion of ID card functionality to include building access functionality

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	●
Web Portal	●
▪ Personalized	⊙
▪ Customized	⊙
▪ Community oriented	⊙
▪ Process oriented	⊙
Service Support Center (telephone/e-mail)	◉
Customer Relationship Management (CRM)	⊙
Document Management	◉
Back Office Process Redesign	⊙
Year Recognized	1998

● *In production*
○ *Implementing*
◉ *Planning*
⊙ *Designing*
◉ *Not intended*

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- Creation of an automatic student account refund process
- Development of an Enrollment Services Web advisory group
- Significant reevaluation of the Enrollment Services Web site by constituent groups
- Development of a new performance management review process
- Focus on individual and team goals
- Increased participation of Enrollment Services counselors in campus outreach activities such as orientation and as liaisons with each college
- Acclimation to a new Oracle financial management system
- Development of a customized institutional loan program

The Future

In the true spirit of Andrew Carnegie, "our heart is in the work." We are always focused on people, process, and technology improvements in an effort to meet and exceed student enrollment requirements. From a technology perspective, we plan to integrate our class schedule, course information, and undergraduate catalog online. We plan to expand student information online to allow students to request grade mailers and transcripts. We are working on the development of a faculty Web site to give them access to class rosters, grades, policies, and classrooms. It would also allow faculty to view academic advising and audit information about their students. We are also planning to develop a parent information Web site that will allow parents to access the financial aid documents, awards, loans, and student account information that their students release to them.

We are planning to redesign our enrollment services Web site to incorporate concepts of customer relationship management and a student portal. Our Office of Technology for Education's phase one initiatives with the Blackboard software platform, which delivers student curriculum needs to our students, is prompting us to rethink how best to redesign our existing Enrollment Services Web site. Our University Relations Division has conducted surveys to assess the perceptions, needs, and values of our current student Web users as part of a comprehensive university plan to redesign our university Web site.

We will continue to measure the effectiveness of our overall enrollment process and each subprocess within it. This includes the financial aid process timeline from the time the student's application is complete through award notification, billing, payment resolution, availability of financing alternatives, and enrollment clearance. We will also continue to measure student satisfaction with the responses and counseling provided by our counselors in the HUB.

We are planning a new enrollment services staff orientation program to help new staff members more quickly assimilate the mission of our organization, the goals of their teams, and their relationships to the organization. This orientation will focus on the value of teams in developing integrated solutions and the collaboration necessary to be productive and to meet student enrollment requirements.

Lessons Learned

Having an executive sponsor who is the process champion (such as a vice president and/or provost) is critical for success. This individual serves as the primary change agent and leads the way; holds back critics; and encourages, persuades, and reminds all campus constituencies that the core business of our institution is to provide students with a valuable educational experience. Our vice president for enrollment has served us well in this capacity. This support allows Enrollment Services to focus on the design and implementation of automated and Web-enabled enrollment processes and services. In turn, this allows our students to focus on their educational experiences and minimizes the time they must spend on administrative tasks associated with enrollment.

This new organization requires a new type of leader. The leadership of Enrollment Services sets the climate, direction, pace, expectations, and organizational behavior. To be successful, leaders must continually integrate the vision, mission, and values into the daily operations and behaviors. The organizational vision, mission, and values must be tangibly embedded into its operations and linked to the service theme and performance management. This must be communicated directly in performance management meetings with staff and in team meetings. It is essential to create a performance management process, take time to use it effectively, and clearly identify all staff expectations.

To be successful, the directors of this new organization must simultaneously drive technology and behavioral changes to create competitive advantage. Directors must nurture an environment within Enrollment Services that enables the sharing of ideas and supports learning. The ability to collaborate is essential if we are to meet and exceed students' expectations.

The new organization requires a new type of staff member as well. This individual brings skills and expertise tempered by an understanding that meeting the changing requirements of the student enrollment process is our mission. No one set of expertise and no single individual will be able to achieve this type of comprehensive goal alone. Identifying this collaborative, mission-driven employee will become important in the hiring process.

As student service organizations restructure to provide many types of services to students, counseling services translate into customer service. Our best service providers in the HUB are those who possess counseling skills, understand the informational and servicing needs of both parents and students, and have perspective on the higher education experience. These service providers also understand the importance of team relationships and customer relationship management. As long as they possess these characteristics, the lack of a specialized set of financial aid or student registration skills is not a hindrance to success. Specialized sets of skills can be successfully taught and learned; relationship management and behaviors are less easily taught.

It is important to focus on the professional development of the staff. To the extent possible, define this in advance as you develop your transition strategy. Do not assume that staff will learn easily. Develop a commitment to teaching and learning, and create an infrastructure to build knowledge, skills, and perspective aggressively with a well-structured methodology. It is important to create collaborative behaviors that are centered on teaching, learning, and problem solving.

Behaviors, which are reflective of the organization's values, need to be recognized daily and in front of peer teams. This visible recognition of both the individual's and team's achievements may evolve into a new reward and recognition system. Staff will continue to need individual recognition in addition to team recognition. It is important to create the opportunity for both.

Relationship building becomes more important with team structures. Personal attributes of credibility, integrity, and accountability take on increased importance because the success of one is determined by the success of many.

Having an integrated student information system with sufficient system resources for modification, improvement, and continued development has contributed to our progress and success. Our partnership with enrollment systems and administrative computing and information services continues to be vital to our continued growth.

It is important to design the enrollment services model carefully for staffing and for servicing. It is equally important to design an implementation process that takes into consideration the phases of the organization's

Carnegie Mellon University

Carnegie Mellon University is a national research university consisting of seven colleges and schools and approximately 7,500 students and 3,000 faculty, research, and administrative staff.

The institution was founded in 1900 in Pittsburgh by industrialist and philanthropist Andrew Carnegie, who wrote "My heart is in the work" when he donated the funds to create Carnegie Technical Schools. Carnegie's vision was to open a vocational training school for the sons and daughters of working class Pittsburghers. When the school was renamed Carnegie Institute of Technology in 1912, it took another important step in its transition into one of the nation's leading private research universities. In 1967, Carnegie Tech merged with the Mellon Institute to form Carnegie Mellon University.

The university is a diverse blend of academic disciplines, including nationally recognized programs in cognitive psychology, management and public policy, writing and rhetoric, applied history, philosophy, and biological sciences. Its prominence in the arts dates back to 1917, when it awarded the first undergraduate degree in drama. And it has become a national leader in technological fields such as computer science, robotics, and engineering. Carnegie Mellon is recognized as a pioneer in the uses of computing in education. Its "Andrew" computing network is among the most advanced on any campus today.

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growth and allows the flexibility to change the model or the implementation as the new organization evolves.

Questions may arise regarding the ability of a flattened organization to function effectively without the traditional layers. During the initial phases of implementation you will experience many daily challenges. In time these will be offset by the exposure to concepts, knowledge, higher-level skill sets, and perspectives that were unattainable within the confines of traditional departmental boundaries and hierarchies.

Strength is gained from power sharing. As you build your change model, understand that over time you will move from transitioning to stabilization to organizational growth. Ultimately, you will be able to measure growth from both a process perspective and a behavioral one.

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14

University of Pennsylvania

Continuous Improvement

Frank E. Claus

Overview

Over the past few decades, a variety of management concepts have been embraced and some have fizzled. Remember Mbo (management by objectives) and TQM (total quality management)? There are others as well, but one term sticks in my mind: continuous improvement. Managers are charged with effecting change continuously—never to let up on the idea that there may be a better way of doing something.

Managers of student administrative services must recognize this concept as essential for survival. Customers (students) have as a motto "What have you done for me lately?" They are demanding and rightfully so. However, they have short memories and can't recall the "great" improvements that were made last year. They don't attend a college or university because of its administrative process, but they will remember it, particularly if they have had poor service.

This chapter will attempt to demonstrate the impact of change by reviewing a project initiated at the University of Pennsylvania to improve student administrative service. The purpose of the project was to consolidate departments responsible for student finance by housing them all in one building. The various departments were simply not in convenient locations in relationship to one another.

The departments involved included student financial aid, the bursar, the loan office, and student employment. Each department had important roles in the student administrative process; however, each operated without regard to the impact they had on each other, let alone on the student. They had the following common beliefs:

- They were not the problem; the other areas were.
- They were overworked, sometimes because of the other areas.
- They were under-appreciated and didn't feel they contributed to the institutional mission.

In some cases an adversarial relationship existed between departments and poor communication was partly the reason. Locating these departments in one building certainly was a step in the right direction, but clearly the problems could not be solved by simple relocation.

Projects are only one part of what continuous improvement is all about. The goal is to look continuously for new opportunities and to develop a plan and implement it while being flexible enough to look for new opportunities.

What Causes the Need for Change?

Every day presents a new reason to change something. But what drives the big change decisions? Possible reasons are cost/benefit, cost containment, regulations, product development, customer demand for improved services, technology, or any combination of these reasons.

Cost/benefit. Clearly, money is a strong cause for change. By any measure, the cost/benefit analysis seems to have the most influence on catalyzing change. Certain cost/benefit factors were considered at Penn. Principal among these was the goal to minimize the cost of

Frank E. Claus, *associate vice president for finance at the University of Pennsylvania, joined the university in 1984 to implement the Penn Plan, the university's widely acclaimed response to providing low-cost student loans. In July of that year, he was named university treasurer. In September 1987, he was appointed associate vice president for finance. He received a bachelor's degree in finance from Drexel University and graduated from the Stonier Graduate School of Banking at Rutgers, The State University of New Jersey.*

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delivering any administrative service without incurring complaints. Cost/benefit was an important factor in the relocation of departments. The university thought that this relocation could reduce the time students spent traveling from department to department and increase student convenience. There was no expected reduction in the cost of delivering various services.

Cost containment. "Cost containment" is another term for reducing costs and can also enable an institution to reallocate resources, thus improving overall organization. Cost reduction and cost containment measures have stimulated many managers to be creative. We often assume that there isn't much cost reduction to be found in the area of supplies or miscellaneous expenses such as postage. But postage costs can be reduced through electronic billing. Each item in the operating budget might have money-saving possibilities. New revenue generation options may evolve from the process as well. Even so, it might be necessary to cut staff. Once the Penn project was under way, it became clear that there were cost containment opportunities. Some staff roles became redundant and positions obsolete, creating opportunities for the reallocation of resources or staff reduction.

Regulation. On occasion, the government decides to change regulations, which can actually stimulate creative thinking. Maybe the process of adapting to the new regulation catalyzes revisions to an existing practice, thus improving the process. Although Y2K was not a regulatory change, its urgency resulted in many innovative ideas. Unfortunately, these changes are usually unexpected, and even good planning does not anticipate them. Recent examples in higher education include federal program refunds, Hope Scholarship reporting, and the Master Promissory Note. Although frequently an unwelcome and unexpected event, requirements to comply with changes can provide opportunities for creative thinking.

Product development. A new product often requires changes and should result in an improvement for the organization. New products can result from changes in customer/student needs, such as electronic billing in the student finance department. When combined with electronic payment, this service adds considerable convenience for the student. Organizations that have high customer service standards seek to implement new products aggressively. However, new products likely require staff training, so it is important that staff understand their role in the fulfillment of the organization's mission and the way products meet customer needs. The combination of experienced staff and good product results in good service. Even though managers think of new ideas and ways to please their customers, staff also think of improvements. Managers must remember that frontline staff are knowledgeable and have ideas about ways to shape solutions.

Demand for service. One of the influences of change is customer/student demand for service. This can be a reflection of inefficiencies in the delivery of products or services, such as a delay in the disbursement of a loan, the time it takes for a student to receive a refund, or the time it takes to reevaluate financial aid. A heightened demand for service can reflect a change in expectations because of innovations (e.g., use of automatic teller machines or Web-based access to information). It is very important that managers take the demand for service from customers/students seriously. One suggestion is to have comment cards readily available or to have periodic visitor surveys that seek to determine customer satisfaction with service levels. Unmet customer service demands will certainly elicit responses. In business, customers go elsewhere. In higher education, they call the president.

Technology. Technology is both the instigator of change and the means to effect change. It often provides the answers when solutions are needed. It also allows previously impossible communications and transactions to meet student needs and facilitate the administrative process. A chief constraint in the use of technology is cost. However, one of the great things about technology is that its cost decreases over time.

Combination of reasons. Change sometimes occurs as a result of many of these reasons, which can overlap and reinforce each other. Change is not always predictable and certainly not always resolved in simple fashion. Perhaps the real advantage is that they all produce a stimulus for continuous improvement.

The case study that follows illustrates changes that permitted Penn to move from the dark ages in student administrative service to a 21st century version positioned to move aggressively as technology and money permit. All of the reasons for change mentioned above influenced this plan. No one could have predicted the current outcome. And, because it involves continuous improvement, there is no ending to this story.

Case Study: Continuous Improvement of Student Financial Services

In 1988, various student finance departments were assigned to me. I had been a retail banker with experience in a high-volume business involving large numbers of people. Both banking and student finance can be stressful customer service environments, as the following discussion indicates. However, we were able to find many solutions to difficult problems.

Influence number 1: demand for service. I learned from one student that she had been running around from one department to another, some with locations in different buildings, to find a solution to a simple problem. I realized the need to consolidate all the departments into one building, but this was easier said than done. Although we had administrative agreement and the funding to effect the change, the departments did not fit into the allotted space. The solution was to reorganize, with all front desk activities in one location, creating one-stop shopping. Actually, space determined the need and reorganization became the means. There was no pressure to reduce staff, so staff could be reallocated to other duties where demand was high. The whole idea of one-stop shopping was the result of a problem.

Influence number 2: technology. Because the reorganization resulted in only one point of first contact for the student, we needed to locate student information from a variety of sources into one system. Until this point, each department had its own system. We created a front end from which we gathered information from all other systems. This gave staff an integrated view of a student without having to navigate from one system to another to pull together relevant pieces of information. Thus, staff performed transactions much more simply. In addition, during the course of developing this solution, we figured out how to distribute data processing throughout the university and allow administrators to view a student's account, financial aid, and loan information and make adjustments to items for which they were responsible (e.g., research assistant and teacher assistant grants). This program was an enormous success.

Influence number 3: demand for service/ technology. Penn was positioned for success with its new integrated services concept, which had, in effect, eliminated the traditional financial aid office, the loan office, and the bursar's office. The new concept of the student finance services (SFS) office was to help students and their families cope with the cost of attending the university. But we had done so in an old-fashioned way. We began to plan strategically, setting the following three goals:

- Eliminate the reasons that make it necessary for students to visit the office.
- Give students and administrators the means to solve their own problems.
- Ensure that, if a student had to contact SFS, the first person he or she spoke to would solve the problem, without referral, if possible.

To help realize the first goal, loan disbursements were made electronically. Refunds of overpayments were deposited directly into bank accounts. And Web sites were created to disseminate information.

In response to the second goal, we acquired software that enabled Penn to provide Web-based access to student

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	●
▪ Measurable outcomes	○
Web Portal	◘
▪ Personalized	◘
▪ Customized	⊙
▪ Community oriented	◘
▪ Process oriented	○
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	⊙
Document Management	○
Back Office Process Redesign	●
Year Recognized	1996

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

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information. We initially offered student account, financial aid, loan, and change of address information. We quickly added registration, grade, course, and advising information. Students, who could even vote in student government elections using this software, could not get enough of this great new service. We had thousands of hits on the site, called Penn In Touch, from around the world.

The last of the goals has been the most difficult to implement. Although the consolidation of student finance has enabled Penn to offer students one-stop shopping for financial activities, students are still often referred to other areas of the university. However, the SFS staff takes ownership of problems that can be resolved by simple phone calls. The need for the ability to help students resolve cross-organizational issues offers continued opportunity for creative thinking—and change.

Influence number 4: product development. We discovered the importance of the various products and services that the bursar, financial aid office, and loan office offered, particularly when they were applied to the student's problem as a consolidated solution. However, we realized that there was room for additional improvement and change. Penn's undergraduates did not have sufficient loan limits under federal programs to meet their financial need in full. Graduate and professional students were being assessed fees and were paying high interest rates for loans they needed. Penn has been a leader in the development of loan programs since the 1984 introduction of The Penn Plan. (The plan is a comprehensive collection of financing programs composed of federal, private, and institutional alternatives. It permits families to develop personal financial plans in order to cope with the cost of attendance.)

The next step in our evolution involved product development. To have loans available for undergraduates to meet financial aid packaging requirements, Penn decided to offer Penn Guaranteed loans to all students attending the university. Penn is committed to helping all admitted undergraduates find the financial resources to meet the cost of attendance. Taking the credit risk was a bold solution, but it was one the university's trustees embraced. The loan program was introduced and still functions to meet the needs of Penn's students.

Penn has just established a comprehensive relationship with Citibank to offer loans at preferred rates to all of its students. This arrangement includes Penn guarantees for certain loans and low-cost loans to graduate and professional students. Penn also runs its own in-house budget plan and is a Stafford/ PLUS lender. Product integration enables Penn to offer creative solutions and is critical to the SFS mission.

Influence number 5: demand for service/ technology/cost containment. It became clear that our "counter" style of service was obsolete and did not exhibit professionalism or offer the confidentiality needed to meet student expectations. At about the same time we recognized this, executive management initiated a call for major cost containment. Therefore, a combination of influences stimulated another phase of development.

Fortunately, with the resources available then, we could plan for and redesign our facility. The design chosen was somewhat like a law office with a reception center and private offices. A receptionist would greet the visitor, but we were unsure how to get students from the reception center to the offices without a lot of shuffling. We decided to develop a queuing system. We learned that Blue Cross had a similar problem, and we invited its software development firm to study our situation.

The system we created not only permits the queuing of a visiting student, but it also tells the student how long he or she will wait to see someone. Upon entering the building lobby and the reception center, students can view monitors that tell them how long the wait is. If students know how long the wait is, they can choose whether to stay. Once entering the reception center, students swipe their PennCard to "sign" in. Another monitor directs them to the proper office when a counselor is available. In the meantime, the counselor's computer monitor has identified the student by name and school, and provides the counselor with notes from previous visits. Upon arrival in the counselor's office, the student is greeted by name and served professionally.

The new plan to reengineer SFS required new job descriptions, a change of organization, and a lot of personnel issues. In the course of the transition, staff changes resulted; some staff were let go, and many positions were upgraded. Because we experienced a complete overhaul, the rest of the department was reviewed for changes and potential for cost savings. One of the cost savings plans was to outsource the collection's function, which was done with substantial economic benefit.

Influence number 6: technology/demand for service. The telephone became the next major function we addressed. In a typical month, the staff handled more than 2,000 calls. We decided not to have more lines than we could handle with the available staff. Instead, we purchased an automated call director system, which controls calls by assigning them randomly to staff. We can control the number of staff available and get lots of information regarding use, waiting time, abandonment, and so on. In addition, we can create menus that guide the caller to a variety of information. We have been able to expand the number of incoming lines from six to 11. The system works great, with counselors responding to all callers with the same information as if the student had visited in person. Remote service is growing and is becoming a way of life.

We also established the position of scheduler, who assigns staff to serve students who visit the office or to answer the telephone, depending on the volume of either. We assigned the task of monitoring staffing, telephones, and visits to a high-level manager who has the authority to make changes. We also focused on e-mail service, which is growing with more than 700 messages received each month. The scheduler also controls distribution of e-mail to available staff.

Influence number 7: regulations/technology /demand for service. SFS is responsible for calculating financial need and awarding financial aid packages for the entire university. And it was obvious that the process for these functions seriously needed fixing.

We decided to address two areas needing a solution—needs analysis and awards. Penn implemented electronic awards for the entering freshman class in the spring of 2001. With the assistance of Overture, a software development company, we introduced PennPlan online. This system permits students to view their aid awards on the Web. They can then proceed to fulfill the requirements to obtain the award and will be informed through tutorials of what everything means. Students with no aid can use the electronic worksheet to calculate their finances. After understanding the options, students can model their own solutions and proceed to satisfy either parental contribution or other needs online. This includes applying for loans and filing forms. Some forms still need to become electronic, but we expect to proceed as fast as we can to develop that function. Online needs analysis was introduced in the summer of 2001 and allows staff to perform needs analysis online.

Highly trained staff were used to perform this time-consuming, complex process. By using this program, we expect that staff with less training and experience can complete less-complicated applications or have their work electronically forwarded for approval. This redistributed workload reduces stress and minimizes vulnerability due to staff turnover. In addition to this new enhancement, staff can use imaging in the financial aid process to work without cumbersome files and to distribute the process anywhere they want. The result is a totally paperless process.

Data gathering at the beginning of the process and follow-through at the end complete the process and make life better for students and staff. The goal is that data is entered only once throughout the entire process.

Influence number 8: everything above. There are so many developments that it is impossible to list them. Some current goals are e-billing and electronic payments; e-mail notifications; online exit interviews for loans; international payment processing; improved imaging to classify a document automatically; precollege savings; and more.

There is no end to a program of continuous improvement.

University of Pennsylvania

The University of Pennsylvania's greatness lies not only in its longevity but also in its culture and achievements. Founded by Benjamin Franklin in the 1740s, it is a member of the Ivy League; a private institution; and internationally renowned for its undergraduate-level teaching, research programs, and professional and graduate schools.

The spirit of Franklin's time runs deep in Philadelphia, and it has been a formative force in the university's development as well. Factor in a healthy measure of Franklin's natural curiosity and love of learning, his entrepreneurial drive, his concern for the public good, and the impish sparkle in his eyes, and a fuller limning of the university's culture shines forth. Although it has much in common with its Ivy League peers, it differs from them in significant ways. For some of those differences, we have the inimitable Franklin and the grand old city of Philadelphia to thank. Like Franklin, the University of Pennsylvania is a paradox: cosmopolitan but intimate, traditional but innovative, diverse but unified. The university has flourished by always finding new ways to fulfill its founder's vision.

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Part 4

Staying on the Technology Innovation Curve

15

Western Cooperative for Educational Telecommunications

Designing Web-Based Student Services—Collaboration Style

Pat Shea and Burnie Blakeley

Overview

One of the current projects of the Western Cooperative for Educational Telecommunications (WCET) is Beyond the Administrative Core: Creating Web-Based Student Services for Online Learners, a partnership of Kansas State University, Kapi'olani Community College in Hawaii, and Regis University in Colorado and SCT, a corporate provider of student information systems. Funded by the U.S. Department of Education's Learning Anytime Anywhere Partnerships (LAAP) program, this three-year project, begun in January 2000, aims to produce the following:

- A commercially developed package of student service modules designed for the Web, including services not currently available from any software company
- Web-based student service models developed at three different types of partner institutions
- A set of guidelines for institutions interested in building their own Web-based student services
- Detailed case studies of the institutional change processes required to implement Web-based student services

Compelling Case for Change

Several factors call for the development of high-quality, Web-based student services. Some of these come from inside the institution. Others are due to the changing nature of higher education. They include distance learners' needs for support services, the changing nature of the "distance student," exploding growth in online enrollments, increases in the outsourcing of student services by institutions, and more collaboration among institutions in many areas, including student services.

Distance learners need student support services, too. In 1997, WCET surveyed more than 1,000 institutions in 14 western states served by the Western Interstate Commission for Higher Education (WICHE), which is WCET's parent organization. Of the 310 institutions identified as delivering distance education—some doing so for many years—none were providing *distance* students the same high-quality, comprehensive student services available to *classroom-based* students (Dirr 1999). Indeed, when asked to rate their own institution in terms of their services to distance learners in 14 categories, only 12 of the 310 institutions rated themselves as highly effective in seven or more functional areas, while 24 rated themselves as ineffective in as many as five areas. Clearly, if student support services

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Burnie Blakeley *is a solution architect for the IBM Corporation and specializes in requirements gathering, requirements analysis, architecture specifications, and early software design. He has worked in many industries, utilizing the Unified Modeling Language and copious graphics to bridge the gap between the vocabularies of industry professionals and computer professionals.*

are critical to the success of classroom-based students, they cannot be less so for distance students. (For more information on the results of the survey, see *www.wiche.edu/telecom/projects/studentservices/Survey%20Report.pdf.*)

Both on- and off-campus students expect to access services via the Web. Distance students, once easily defined as students studying off-campus via correspondence or mediated instruction, are no longer confined by this geographic definition. Today's residential students on many campuses enroll in online courses, and many of their classroom-based courses make use of the Web for posting syllabi, additional resources, professor notes, and other material. Indeed, in the 2001 spring semester, 60 percent of KSU's online enrollments were from its campus-based student population. Most online students—both on- and off-campus—are Internet savvy and expect to access services 24–7. What does this trend mean for the institution? On many campuses, distance-learning courses have been housed in self-sustaining units of the institution, outside the mainstream structure of the university. These self-sustaining units developed their own registration systems, tuition policies, and student services, along with a myriad of other policies and procedures. Now, on-campus academic departments want to add online courses to their offerings and retain their share of the tuition, creating tension between the mainstream university and the self-sustaining unit. The students, meanwhile, just want to work toward a degree without all the confusion of different policies, procedures, and services coming from different places within their *single* institution. Students want and expect one voice and unified services from an institution.

To respond better to these students, some institutions are moving their online and other distance courses out of their continuing education or other self-sustaining units and placing them in the relevant academic departments. This is true at both KSU and Kapi'olani Community College. As a result, student services, once provided to distance students separately by the self-sustaining unit or not at all, will now be provided centrally or by the academic department. Student services—including registration systems—need to be reengineered to meet the asynchronous learner's needs both for flexibility and just-in-time service. Some hope this effort will result in a more holistic understanding of a student's needs and an opportunity to serve him or her better along a lifespan relationship with the institution.

Online learning enrollments are increasing rapidly. According to a National Center for Education Statistics (1997–98) study, between 1995 and 1998, the percentage of higher education institutions offering distance-learning courses increased from 33 percent to 44 percent. At the same time, distance education enrollments nationwide almost doubled. Among WCET's membership, much of the growth in distance education enrollments has been in online courses, and expectations are that it will continue, pushing many institutions to grapple with problems of scale. In some institutions, for example, the growth has been several hundred percent just since 1998.

More institutions are collaborating. This is especially true in the electronic arena. Today, many statewide and regional virtual university efforts offer participating providers an opportunity to develop and jointly market their courses and programs to reach new students, to contract together for savings on library and bookstore services, to share costs on e-learning delivery systems, and much more. These institutions recognize a need to provide services for "our" students. It may be that services developed with pooled resources are higher quality than those that individual member institutions could offer. Although the efforts to date have been primarily voluntary, institutions may see collaboration as a necessity for survival in the future. The costs of creating high-quality e-learning courses and the necessary student services may simply be beyond the means of some schools. Competition from larger and better-funded institutions and for-profit entities is expected to increase as students shop across a wide range of providers with the click of a mouse. Some institutions, such as the community college system in Hawaii, are already preparing to become more competitive by offering a joint degree and are developing shared student services like a course articulation system and technical support.

Outsourcing options for student services are expanding. The number of for-profit companies offering student service solutions for campuses has grown tremendously. These include library, bookstore, personal and career counseling, and tutoring services as well as many others. With tight budgets and labor markets, many campuses are looking to outside providers for a solution. This approach also alleviates the need for the

institution to invest in technology solutions that might be outdated very quickly. In many cases, the services can be integrated into the campus Web site with the same look and feel so that the student has a seamless experience and outsourcing is transparent. Although outsourcing may be easier than developing and implementing the service internally, it still requires that the institution have a detailed understanding of its expectations of the service provider and have established methodologies for assessing the quality of the services delivered.

Project Summary: Phase I

This LAAP project has been divided into three phases. Phase I was devoted to assessment and planning. Phase II (where we are at the time of publication of this book) is focused on design and development of new Web-based student services. Phase III will concentrate on implementation and evaluation of these services.

The first year of any collaboration is probably the hardest. Not only are partners trying to figure out how they can benefit from the collaboration and what they can bring to it, they are also trying to figure out what they as a group want to do. This step was especially difficult for the LAAP project because the institutional partners are so diverse: a large land-grant university in Kansas, a small community college in Hawaii, and a private university in Colorado. Their missions, student bodies, and budgets are all very different. With the addition of corporate partner SCT, the partners are located in four time zones, and none of the institutions uses an SCT student information system. Although daunting at times, these differences have challenged participants to look harder for commonalities, such as their long-standing experience in distance learning, a strong desire to provide high-quality student support services, and a commitment to treat each student as an individual. Moreover, these differences have forced the partners to seek new ways to communicate and work together that may serve as models for other institutions undertaking collaborative efforts.

With the exception of one face-to-face meeting each year, the partners have worked together in virtual space. Using conference calls, e-mail, a listserv, Web casts, and a collaboratory (a Web-accessible, shared working space), the partners stay in contact with one another and share documents, expertise, and resources.

During this initial phase, each institutional partner assessed its own current student services and determined its priority service for development in the project. Because it is likely that more institutions will collaborate in the design and delivery of electronic student services in the future, several lessons learned during phase I of this project might provide some initial guidelines.

Establish a primary point of contact for each partner. It is critical that each partner name an individual to serve as the partner's project director and primary contact among the partners. This person should be a member of the campus community who is well respected by administrators, faculty, and student services professionals. She or he must be able to think outside the box and inspire campus personnel involved in this redesign effort to focus on what *should* happen in the future, not what already does happen.

Ensure that all partners have the same understanding of the goals for the collaborative project and of each partner's role in it. This sounds simple. It may not be. Each partner's understanding of what constitutes "student services" may be quite different. Indeed, even within a partner's staff there may not be a common understanding. Additionally, some partners might want to protect some of their services and not include them in the project. To establish a unified vision, it is helpful to put the group's thinking down on paper as concisely and clearly as possible. A one-page description of the project might help to keep everyone on track.

Develop guiding principles for the joint project. These should be overarching guidelines that go to the heart of the project's purpose and goals (see Figure 15.1). As work evolves on the project, it is good to review these periodically so that the project stays on course. It is particularly important to do this in a collaborative way because individuals are not working closely together on a daily basis.

Use the same vocabulary. This may be easier said than done. A case in point is the title of this LAAP project, Beyond the Administrative Core: Creating Web-Based Student Services for Online Learners. Initially, each partner had a different idea about what the term "student services" meant and which services were within the administrative core. To proceed, the LAAP partners generated a list of student services for online learners, divided into the five following "suites of

services" (see Figure 15.2) to provide a common basis for discussion within the project:

- *Administrative core:* admissions, registration, financial aid, student accounts, student records, and course/program catalog and schedule of classes
- *Communications suite:* student to student, faculty to student, faculty and staff to faculty and staff, and institution to student
- *Academic suite:* academic advising, academic counseling, assessment and testing (diagnostic, placement, and academic), bookstore, library, developmental education services, retention services, technical support, tutoring, and services for students with disabilities
- *Personal services suite:* personal counseling, career counseling and placement services, ethical and legal services, financial planning (budgeting, banking, loan and credit card management), wellness services, and orientation
- *Student communities suite:* student activities (recreation, leadership, academics, and religion and spirituality) and student population segments (international, minority, veteran, and alumni)

In another example, although the proposal called for "creating services for online learners," partners immediately realized that all of their students wanted access to online services and that "creating online student services" was really a more accurate description of what was needed. They agreed to keep the official title of the project but to recognize that they had a broader mission than the words implied. Skipping ahead a bit, the partners are developing glossaries as they work on the design of specific services with "a.k.a." (also known as) words and phrases sprinkled throughout to keep meanings clear.

Build the collaboration *among* the partners upon a strong foundation of collaboration *within* the partner institutions and corporations. This sounds simple, too, but it can be very complex when working on services beyond those in the administrative core. Services in other suites, such as academic advising, may be partially decentralized or wholly decentralized within the institution's structure. In addition, two sets of services may be offered across the suites: one for on-campus students and one for off-campus students. To address this situation, each of the LAAP project's institutional partners created cross-functional vision teams from

Guiding Principles for the LAAP Project

1. The Web designs and products developed in this project will be *learner-driven and provider-structured*. The designs and products will be based on a strong understanding of user needs and on user testing.
2. Student service models will be *based on well-established guidelines and standards*, such as the Association of College & Research Libraries' Guidelines for Distance Learning Library Services, the W3C Web Content Accessibility Guidelines, the National Academic Advising Association's Core Values of Academic Advising, and the Council for the Advancement of Standards in Higher Education standards, where they exist. Where they do not, the need for guidelines will be identified and documented. As appropriate, guidelines for student services that are developed by the project partners during the course of the project will be published.
3. The *student services staff* responsible for implementing newly developed online student services modules at partner institutions will be involved in the initial planning process.
4. As appropriate, Web service modules developed through this project will *focus on customization*, providing a Web interface linked to an individual student's profile and interests, and enabling the student to answer easy questions for himself or herself and to contact as quickly as possible a real person when further help is needed.
5. Student services *models developed in this project will be designed for replication* by other institutions developing similar services.
6. All *partners will share information* about their project activities and progress openly and on a regular basis with one another through communication systems established by the Western Cooperative. In addition, information about the project's processes, products, and results will be widely *shared with the public* both during and after the project.
7. Partner institutions will *track and document the process* through which student services models are developed at the institution.

Figure 15.1 Seven Guiding Principles for the LAAP Project

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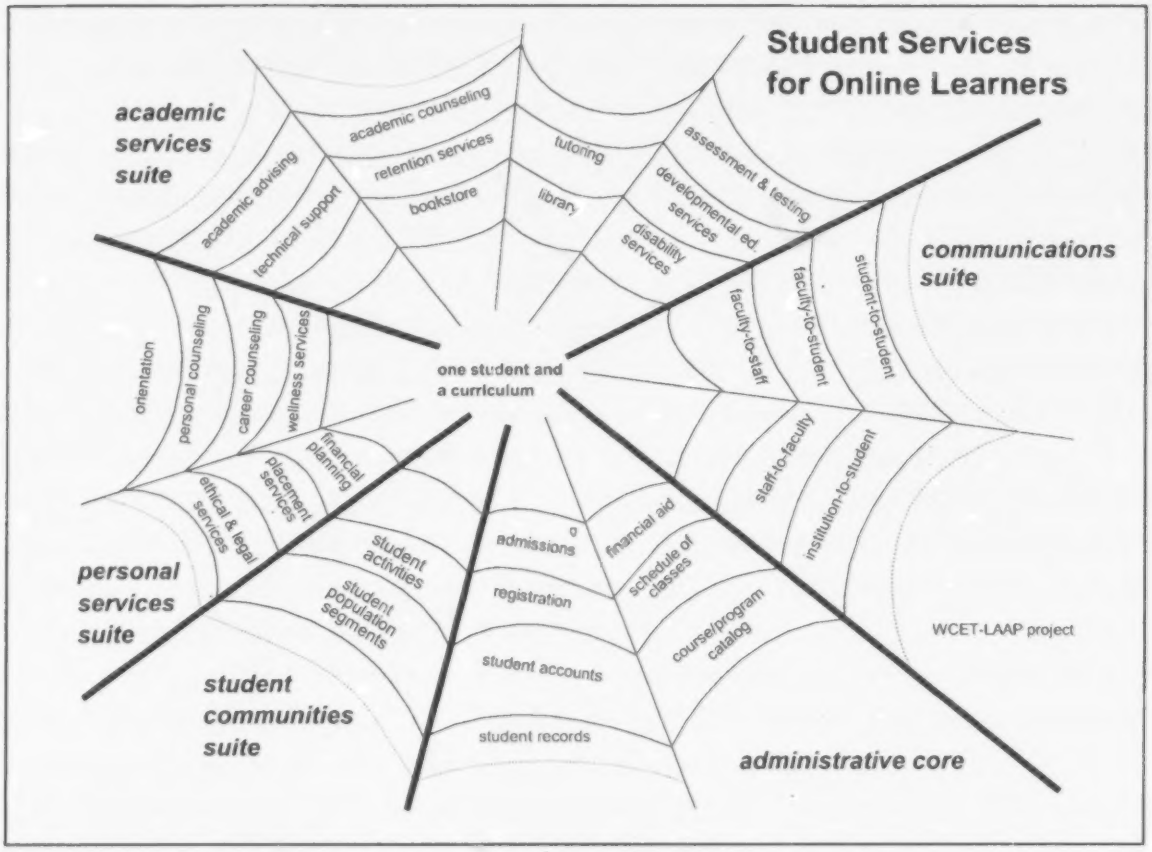

Figure 15.2 Student Services for Online Learners Beyond the Administrative Core

across campus. Participants included deans of instruction, academic support, continuing education, and student services as well as admissions officers, chief information officers, counselors, program directors, faculty representatives, Web masters, and computer specialists. It is interesting to note that each of the campuses found it necessary to expand their original teams as they realized that their student audience was not just the distance learner—but campus-based students as well. The expanded teams assessed the status of their current student services, determined the services their campuses should offer via the Web, and then identified the services that were their highest priority for development and, therefore, to be the focus of the LAAP project. The corporate partner determined its focus based on research among its client institutions.

Collaboration is proceeding across the diverse institutions despite the initial difficulties of dissimilar vocabularies, differing policies and practices, scarcity of project work time, disparate institutional missions, radically different current information technology environments, and the usual variable campus political conditions. Its success to date is due to two major reasons: determination of team members and choice of project techniques. The team leaders believed strongly in the potential rewards from this project and have worked hard to meet joint project deadlines despite limited resources. They also chose to use scenario building (and the companion Unified Modeling Language [UML] or "picture language") as the technique for sharing requirements across the institutions.

User scenarios are analogous to scenarios from a literary play, whereby a dialogue simulates an exchange of information to accomplish some purpose. UML treats the human user of the as-yet-undefined system as an "actor" who interacts with the system in a series of

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scenarios, where each scenario accomplishes some single purpose. In fact, the UML picture symbol for the actor is a stick figure. *Visual Modeling with Rational Rose 2000 and UML* by Terry Quatrani (2000) includes an excellent tutorial on UML. We have made no attempt in this chapter to discuss or describe UML. However, it has been extremely well received by all partners as the choice of expression for requirements. Similarly, *The Art of the Long View: Planning for the Future in an Uncertain World* by Peter Schwartz (1996) provides an excellent tutorial on scenario building.

Agree to a common work plan and time line. Although the approach each partner takes to project tasks may be different, it is important to establish some milestones to accomplish by set dates to enhance the collaborative effort. These milestones are especially necessary if the level of commitment or number or amount of resources the partners bring to the project vary significantly. Redesigning student services takes a significant amount of time—more so when it is a multi-institution effort. It is critical to the success of the collaborative effort that the project team identify what they can reasonably accomplish in given periods of time. The team should give careful consideration to working in phases. By doing so, the team may introduce a series of smaller successes that build credibility for the project and offer satisfaction to the team members. The team members will also benefit from what they learn early on and can incorporate it into the project's later stages.

Project Summary: Phase II

During the second year of this project, each institutional partner is developing a module for a service to be adopted, or adapted in varying degrees, by the other partners. Although the working titles for these services are traditional, the final outcomes may call for new and more expansive terminology.

KSU is working on modules to support academic advising. Kapi'olani is concentrating on tutoring. And Regis is focused on orientation. Meanwhile, SCT is developing a data brokering interface solution that will allow its student information system to exchange data in real time with the data systems of a broad range of third-party providers of student services. This system will make it possible for SCT's client institutions to provide customized and personalized Web-based student services, either via a third party or by developing a messaging interface between the institution's own student service data systems and the SCT data brokering solution.

Why these services? The realm of student services is huge, and it is difficult to know where to start in creating Web-accessible student services. Many campuses begin with the administrative core for several reasons. Services within this core have a history of working together, their policies and procedures are well-defined, and there are some good one-stop-shop models to follow, making the transition to an integrated Web environment easier. Additionally, Web-based services in the other suites can be more fully personalized by integrating them with the back-end systems supporting the administrative core. By keeping similar student data in one database—rather than in several stand-alone databases—ensuring data accuracy is more manageable and makes the student's interaction with the university more user-friendly.

The purpose of this project, however, is to develop some services *beyond* this core; the administrative core itself is not being addressed, only referenced where necessary. To determine where to start, each of the campuses surveyed or held focus groups with their students. They conferred with key administrators and student service professionals. Interestingly, the students on each campus identified academic advising as the most important student service—or at least it appeared that way on the surface.

Refining the focus. Despite the high interest in academic advising as a priority for development, there was a lack of consistency in the meaning of "academic advising," not only *among* the partners, but also *within* their own institutions. KSU—like many institutions—has both centralized and decentralized academic advising. There are both full- and part-time staff academic advisers and full- and part-time faculty academic advisers. The policies and procedures and the services that advisers provide vary from one college to another. So one challenge was immediately clear: to design a solution for academic advising that could provide some commonality across a single institution's departments but also have the flexibility to be customized by the various entities. From a student's perspective, the solution should result in more consistency in academic advising across campus.

The Web holds great promise for this type of solution. Moreover, it provides a platform on which it might be easier to integrate services, eliminating

inefficient silo operations. For example, is it necessary to keep academic advising separate from academic counseling or career planning? This structure may make sense from an institution's point of view but not necessarily from a student's point of view. In an electronic environment, the student might click from one to the other, taking information from one source to the next for a more comprehensive service. At KSU, the design team is now wrestling with this dilemma—what should the parameters of this new service be? Careful planning by this cross-functional team is likely to yield a new hybrid service in the long term.

Sometimes, students combine services in their minds, even if the institution does not represent them that way. For example, Regis realized that many of the types of assistance the students identified in its survey as priorities for Web access were not really academic advising services. Rather, they were orientation services, which are currently supplied by an adviser. With careful planning, Regis will develop a series of orientation modules responding to students' requests. These modules will also reduce the amount of time advisers spend on routine tasks with each student so that they can focus on better servicing the needs of the individual and using their limited time more efficiently.

It is just this kind of student-centered thinking that Kapi'olani has used in its decision to focus on tutoring. The college's administrative core services are not yet Web accessible, making it difficult to offer some of the functionality that would be desirable in services like academic advising. Tutoring modules to assist students in a particular subject area, however, are needed immediately, as are modules in general skills areas. In developing solutions for tutoring, KCC anticipates that it might also support aspects of orientation and advising—aspects that, when considered differently, might simply be special cases of tutoring. For example, some of the same functions occur in all three areas. These include providing information, evaluating responses, and tracking interactions and referrals. Although the content changes from one area to the other, it might be that one or more technology solutions supporting tutoring will work for these as well.

Collaborating in the design stage. Collaborations are most successful when they are built upon common understandings. Achieving this end is easier when the topic is something concrete and already in existence. The challenge in collaborating to redesign student services is that individuals bring to the table experience with their current operations—which are not likely to be the same—and then must enter the abstract world of imagining and communicating about a new, possibly hybrid, service. To respond to this challenge, LAAP partners used the following techniques to strengthen their collaborative effort.

- *Identifying the key assumptions and issues related to redesigning the selected student services within the institution.* By keeping track of the key assumptions (the "givens" that cannot or should not be changed) and trying to resolve some of the issues (the things that get in the way of success) at the campus level, a design team is better prepared to make decisions and to modify them at a later date. By sharing all of these assumptions and issues among institutions, partners might see patterns developing that indicate trends or uncover solutions that can be replicated. For example, each institution assumed that its online enrollment would continue to grow and that both on- and off-campus students would be represented in it. This assumption pointed the way to merging services for these groups whenever possible. An issue at each campus was the limited resources available to the project from an already overburdened information technology staff. Early on, it was clear that the design teams needed to find ways to make the most efficient use of information technology staff time. The scenario building process, described later, offered a way to limit their involvement in the early stages and to provide them with more concrete information when their help would be most needed.
- *Developing a common understanding about the principal drivers (that is, motivating forces) for redesigning these student services.* By agreeing to some of the primary drivers for newly designed student services, partners are more likely to develop solutions that all can adopt. The LAAP partners recognize the following key drivers:
  - Student-centered: The Web's integrated nature makes it possible to design services that are more student-centered, rather than institution-centered.

- Self-service: To the extent possible, services should be designed to allow students the choice to serve themselves anytime and anyplace, continuously or in discrete increments.
- Personalized and interactive: The service should recognize the student and provide a personalized and interactive experience.
- Just-in-time: Services should be delivered in user-friendly modules as needed on a just-in-time basis, rather than as large, one-time data dumps.
- Push and pull: Students should not only pull information from services, but services should also push information to the student, as appropriate, throughout institutions' relationship with the students. For example, the system should notify a student when a closed course of interest to them reopens by pushing this information to the student (see Figure 15.3).
- Lifelong: Services should be available to students as long as they desire to be associated with the institution. These services may be offered at different levels and for different fees, but they should be available nevertheless.

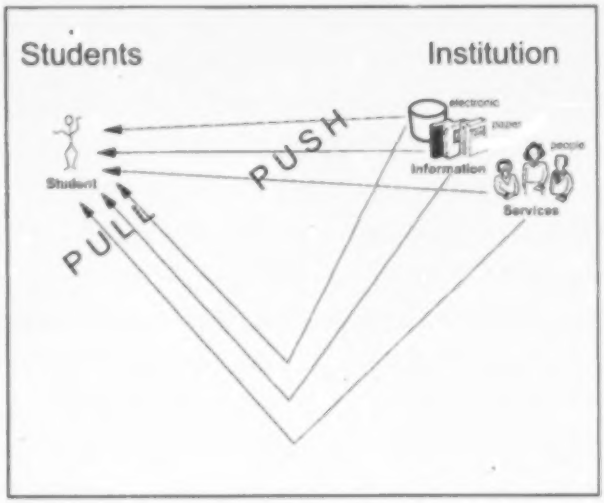

Figure 15.3 Drivers for Web-Based Student Services

- *Using a common language to express design.* By using a common language and methodology, partners are much more likely to understand what is intended for a new service. In the LAAP project, partners are using UML with scenarios to depict their visions of what the new Web-based student service should be like. UML is a standardized graphical language that allows one to illustrate complex ideas in a simplified manner (see Figure 15.4). Use cases are collections of scenarios that represent a set of similar interactions between actors and a system. The scenarios building method allows the team to communicate with stakeholders easily and quickly to secure further input on design concepts and issues. Similarly, the UML offers a picture language for easier communication between team members.

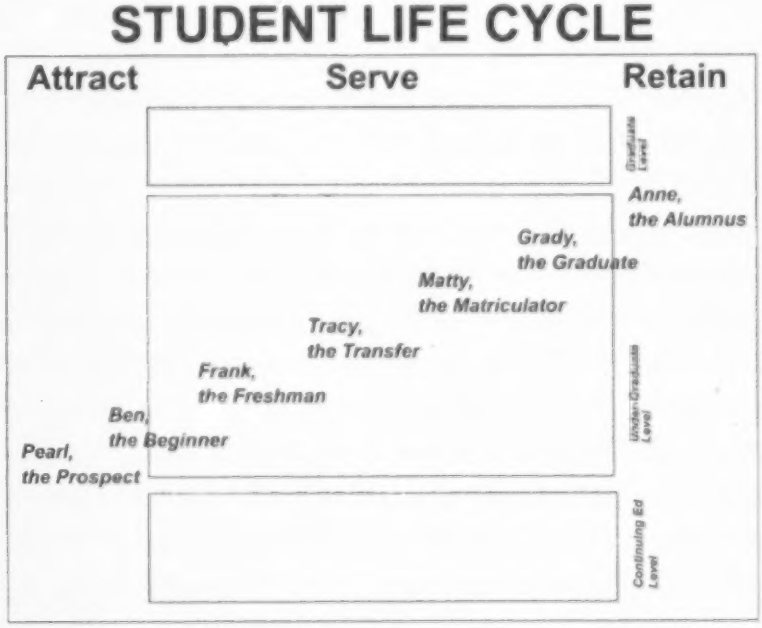

Figure 15.4 Institution Partitions and the Student Life Cycle at Kansas State University

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In this LAAP project, because each of the partners is developing scenarios for a different service, they plan to share these scenarios and adopt or adapt them to their campuses where possible. Each campus can then accelerate its effort in a broader area because it will not need to start from scratch or to specify technical details too early. Partners took this approach in the LAAP project because each campus had different priorities for its initial focus. In collaborations where there is an initial joint focus, the same scenario process can help partners come more quickly to a joint vision for the new service. One important observation: It takes time for campus professionals to learn to use the scenario process and UML, a different way of communicating. Thus, an allowance for this should be built into the timeline. Involving a facilitator who is knowledgeable in this area can be very beneficial.

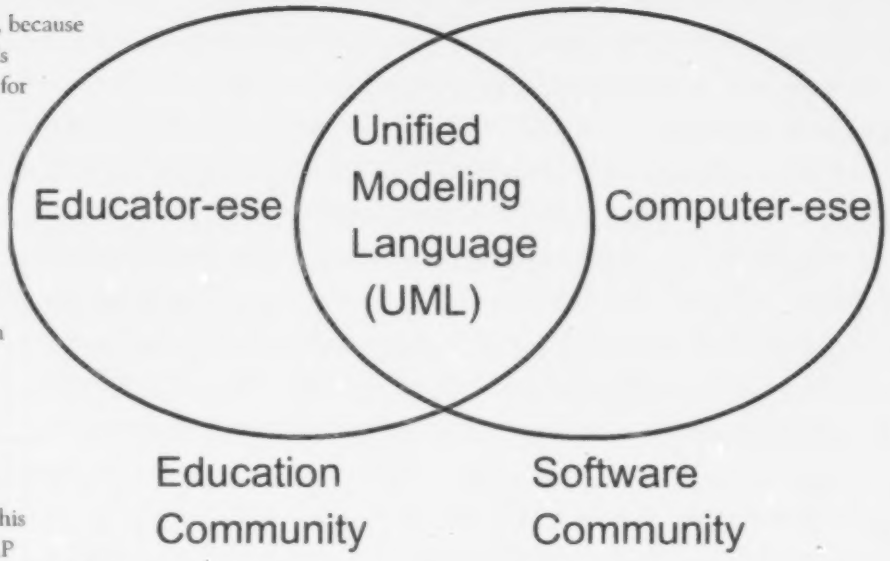

Figure 15.5 UML Spans Communities of Professionals

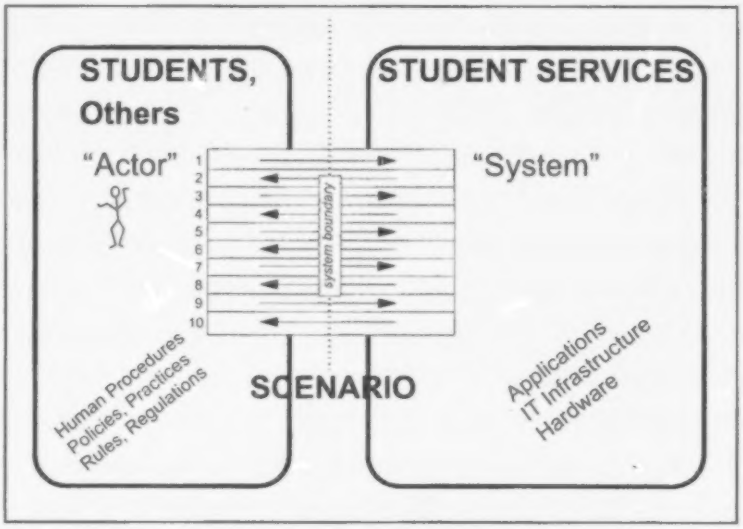

Figure 15.6 Scenarios Record Interactions Across System Boundary; Applications and IT Infrastructure Support the Scenarios

As Figure 15.5 shows, the UML does, indeed, unify the campus communities of education and computer experts as well by establishing a common and simple vocabulary that is both verbal and visual. Since software companies commonly use UML, it also aids in communication between institutions and corporations. Figure 15.6 shows that scenarios record the system boundary crossings that occur as actors (that is, students and institution members) interact with the as-yet-undefined system. It also shows that applications (and the information technology infrastructure that supports the applications) are determined by the computer experts to support the interactions that originate from the system back to the actor. Education experts at no time have to become involved with the inner workings of the software system that is supporting the scenarios that they have described.

- *Focusing initially on the what, not the how.* The design stage is an opportunity to dream big—what a service *should* be like, not what it currently is. Discussion about technology solutions should be kept to a minimum so that they do not limit the vision. Although it might not be possible to use technology to perform certain operations today, new solutions are developing rapidly.

Scenario building is a process that records only a selection of representative scenarios, not an exhaustive listing. By creating scenarios (see Figure 15.7) for only the most critical and most frequent interactions between a user and a service, the design team develops a good basis for the new design. This stage should not be rushed. The more thoroughly scenarios are developed, the more

Scenario #S1a: Student Requests Advising Appointment		
Goal	Gain an appointment with his or her adviser	
Preconditions	▪ Frank has been assigned Alice as academic adviser ▪ Sally is student services representative for Alice	
Step #	**Initiating or Other Actor**	**Advising System**
1	Frank requests an enrollment appointment	
2		Queues request to adviser = Alice
3	Sally requests Alice's appointment queue	
4		Displays Alice's queue and schedule
5	Sally assigns Frank a slot = next Tuesday at 2:00 PM	
6		Updates Alice's appt slot as pending and confirms Frank's appointment to Sally
7	Sally confirms Frank's slot	
8		Notifies Frank of time slot
9	Frank confirms Frank's slot as ok	
10		Notifies Alice of time slot
11	Alice confirms Frank's slot as ok	
12		Updates Alice's appointment schedule as confirmed
Postconditions	▪ Frank has advising appointment = next Tuesday at 2:00 PM ▪ Frank, Alice, and Sally know of Frank's appointment	

Scenario-Step	Exists	Buy	Build	Partner	Comments
A2					
A4					
A6					
A8					
A10					
A12					

Figure 15.7 Sample Scenario of Interactions Between Actor and System

likely the final outcome will meet expectations. Indeed, the LAAP partners have spent more than a year on this "what" phase. Once all the stakeholders are comfortable that the selected scenarios accurately describe what the new service should be like, these scenarios can be handed over to the campus information technology staff for review. The staff should then recommend technology options for supporting the scenarios, including using existing campus technology solutions, buying new solutions or outsourcing to a third-party provider, building new solutions, or partnering in the development of new solutions. Regardless of whether the collaborative partnership plans to develop the solution jointly, the information technology staff of partner institutions may benefit by conferring with one another.

- *Recognizing that redesign is an iterative process.* The scenarios are a good first step in redesign, but more detail is likely to be needed to identify the final requirements for the new technology solutions. For example, the information technology staff might need additional information, such as the kind of data to be displayed and characteristics of the interface, just to determine the best technology option(s) to explore. Certainly, to support the service fully, this type of information is needed. Thus, depending on the complexity of the design, much back and forth discussion might have to occur between the design team and the information technology staff to elaborate on the final requirements of the system. The information technology staff is responsible for building the system and system interfaces to support the scenarios described by the external users.
- *Understanding that although what partners want to accomplish might be the same, the technology solution(s) might differ.* Although student services vary somewhat from institution to institution, the basics are held in common. By modifying the scenarios for a service, another institution might, as discussed earlier, jump-start its own redesign process. In some cases, the same technology solutions work. In other cases, institutions have to explore additional options due to compatibility, funding, or other issues.

What We Would Have Done Differently

The institutional partners were selected for the project because they represented different sectors and constituencies of higher education, which would aid in developing solutions with broad application. The project would have moved faster if the campuses' Web infrastructure for student services had the same level of sophistication and was common to the corporate partner. That would have been good for the project. But what we are doing might be better for the field; it is probably more typical because no two institutions are ever exactly alike.

To date, the project has been focused on the less-expensive planning phase. As it moves into the development period, funding is likely to be a major concern. The partners have scaled back their initial plans and are approaching the development in phases over a longer time span unless additional resources become available. One recommendation, then, is to assure that all partners recognize the limitations of funding and define the scope of the project and expectations for it within the parameters of what is realistically achievable.

Conclusion and Recommendations

Most students need and want to access student services via the Web. Institutions may begin by redesigning those services within the administrative core, but they must then move on to the other suites of services "beyond the administrative core" if they are to satisfy the needs of their students fully. As more institutions collaborate—internally and externally—in the delivery of courseware, they will seek ways to collaborate in redesigning and delivering and outsourcing student services. Collaboration in the design of student services can work across diverse institutions despite the difficulties of dissimilar vocabularies, differing policies and practices, scarcity of project work time, disparate institutional missions, radically different information technology environments, and the usual variable political conditions. Its success relies heavily on each partner's commitment of time and resources and a communications infrastructure that assures a common understanding

Our work on this LAAP project to date leads to three major recommendations for individual and joint campus efforts to reengineer student services for accessibility via the Web.

Recommendation 1. Work diligently to involve all stakeholders in a directed group effort of discreet and intense sessions to assess current services, to select priority services for development, and to plan what these new Web-based services should be like. This is very important. Most campus professionals want to help with new projects, but they are extremely busy with their own assignments. The project director, by holding a series of short, very focused meetings, can maintain project momentum and the participants' enthusiasm and support for it.

Recommendation 2. Use scenarios and UML to communicate within the institution and among the partners about the new Web-based student services. Using a methodical approach such as scenarios and UML, multiple-campus entities as well as partnerships among campuses can readily identify their commonalities and differences in their vision for new services. In addition, they can develop the requirements for the technology solutions that will support their new student service operations. Although the actual technology solutions may vary among institutions, the requirements are likely to be similar.

Recommendation 3. Set a realistic time line for the scope of the project and appropriate expectations among the campus community. Going beyond posting information about student services on the Web to building personalized and interactive services takes time and in many cases will require reengineering current services, integrating them, and possibly restructuring parts of the institution that support them. Although it is imperative to have a vision for the big picture, it is not possible to work on all services at once. It is important to define the scope of the project and to set realistic expectations for its success. Within this scope, careful thought should be given to determining which services are priorities for development. Even within these priority services, it might be necessary to develop and implement modules in phases. At the same time, it is important to set realistic expectations among staff and students. Although students might want access to all services 24–7, this is not viable for the institution. Where it is possible to provide self-service, institutions should do so. Where it is necessary for students to interact with campus professionals, clear limits should be established and communicated. Just as banks make many services available 24-7 via self-service, they restrict others—such as discussions with a loan officer—to working hours. Finally, it is important to realize that working across institutions takes even longer than working within a single institution. Appropriate checkpoints should be built into the joint time line and adjusted as necessary to keep the project on course.

As the LAAP partners finish the scenario building process, they will move into the development phase of the project, where it is hoped that the careful planning to date will help them achieve the satisfying outcomes they seek. Stay tuned for the final results.

Western Cooperative for Educational Telecommunications

The Western Cooperative for Educational Telecommunications (WCET) is a membership-supported organization open to providers and users of educational telecommunications. Members represent the higher education community, nonprofit organizations, and corporations. More than 45 states and six countries are represented in its 250-plus members.

WCET acts as a central clearinghouse for information and expertise on mediated learning in higher education. It facilitates multistate projects in telecommunicated education, advocates effective policies in the use of educational technologies, and serves as an evaluator and researcher on quality uses of educational telecommunications. To support its members, WCET undertakes long-range projects in complex areas of interest that are beyond the resources of a single institution.

Resources

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16

Louisiana State University

Building the Digital Infrastructure to Transform Services

Cynthia M. Hadden, John C. Borne, and Robin R. Ethridge

We are starting the first decade of the 21st century with a growing awareness of what is needed to support flexible Web campus environments. A new infrastructure is needed—a digital plant. As with our physical infrastructure, this digital infrastructure needs to be designed, planned, built, maintained, and staffed. (Boettcher and Kumar 2000)

Overview

Thirty-one percent of today's college students describe themselves as dependent on the Internet, according to a 2000 study by Greenfield Online and YouthStream Media Networks. In addition, 28 percent consider themselves "cybergeeks." Most have used the Internet for at least three years and access it at least once a day. The more education a person has, the more likely he or she will use the Internet for particular activities, such as accessing financial, political, and government information (Howard, Rainie, and Jones, In Press). In fact, one of the top three reasons students select a college is the quality of that college's Web pages (Long 2000). These data suggest that it is not enough to provide today's Internet-savvy college students with Web access to transformed student services. Quality of service and presentation are also important.

According to a study by the Newport Group (1999), more than half of the applications designed to provide reliable business services over the Web fail to scale as expected. In fact, the average Web application handles only 72 percent of the traffic for which it was originally designed. Applications that fail to meet expectations result in poor or nonexistent service as well as increased development costs. As two of the primary reasons for developing Web-based services in the first place are improved quality of service and improved efficiency, a failed infrastructure spells disaster.

The development of the digital infrastructure required to support Web-based services is a complex process that requires the implementation of numerous, overlapping, and sometimes-interdependent processes and procedures. This chapter will outline the steps required to build a digital infrastructure to support transformed student services by discussing the issues and lessons learned at Louisiana State University. It will also discuss methods for evaluating the success of a digital infrastructure initiative.

Cynthia M. Hadden, *director of the Enterprise Solutions Group at Louisiana State University, has comprehensive experience in the management of information systems development, specializing in large systems, Web applications, and system integration. She has received two Chancellor's Commendation awards and co-written three papers that have been awarded a CUMREC Best Paper award.*

John C. Borne *is assistant director for systems support with the Enterprise Solutions Group at LSU. His area of responsibility includes database administration, Lotus Domino planning and support, server infrastructure planning, and technical support of application analysts. Much of his recent work in these areas has been in support of the PAWS system.*

Robin R. Ethridge, *a manager with the Office of Computing Services at LSU, develops information systems and serves as project leader for the PAWS system. She has co-written three papers on PAWS, receiving the 2000 EDUCAUSE Best Practice Award and the 1998 and 2000 CUMREC Best Paper awards.*

Personal Access Web Services. Personal Access Web Services (PAWS) is the digital infrastructure that supports Web-based student services at LSU. Today, some would call this infrastructure a portal. However, the requirements for PAWS were drafted in 1996, before the concepts of digital infrastructures or portals became popular.

The Office of Computing Services at LSU initiated the PAWS project in an effort to make technology relevant to students, faculty, and staff by giving them direct access to data previously locked behind mainframe information systems. Once the infrastructure was in place, Computing Services worked with other offices across the university to deliver services through PAWS.

The development of the PAWS infrastructure was driven by a core set of requirements, which were phrased in technical terms rather than service terms because the project was initiated through a technical office. Experience has taught us that a core set of requirements, whether phrased in technical terms or not, must drive the development of the digital infrastructure. This is particularly important when the terms used to describe the infrastructure (for example, "digital infrastructure" and "portal") mean different things to different people.

Requirements for the development of the PAWS digital infrastructure were outlined from three perspectives: end user (students, faculty, and staff), administrative, and technical. These requirements are briefly described as follows using the phrasing from the original requirements definition.

The primary objective of the project, from the end user's perspective, was to provide a user-friendly, real-time interface to data stores previously available only through administrative offices. In addition, because of limited financial resources and personal preferences, a second objective was to make this interface available on a variety of platforms.

From the administrative perspective, a key objective was to build the infrastructure with technologies that analysts could easily learn without experience in client/server or Web-based technologies. Further, it was important that these technologies position LSU to take strategic advantage of existing assets, such as in-house legacy systems and existing business data.

Finally, from the technical perspective, the infrastructure had to allow for upgrades of data stores without requiring major rewrites of existing applications. Rewriting applications simply to accommodate new technology is expensive and often results in no net improvement in services. In addition, the infrastructure had to present data without regard to how or where the data were actually stored.

Five years later, the system built to meet these requirements is an unqualified success. PAWS is a digital infrastructure that delivers 60,000 unique intranet portals to members of the LSU community. Each portal is customized to reflect the individual's relationship to the university and dynamically adapts in real time when this relationship changes. Services accessed from the PAWS gateway pages shown in Figure 16.1 include applications that meet the specific administrative, academic, and research needs of each PAWS user. Some of the most widely used PAWS applications include e-mail, registration, degree audit, grade inquiry, financial aid inquiry, library collections, and course tools. Understanding the requirements for the infrastructure was a key to its successful implementation.

"Digital infrastructure": just another name for "portal"? "Digital infrastructure" is sometimes just another name for "portal." The term "portal" has evolved to mean different things to different people. It is overused, misused, and quickly becoming useless. Nonetheless, a look at recent journal articles and conference programs indicate that it is very popular.

LSU has made the case that PAWS should be classified as a portal based on the definition of that term in *Building a Portal with Lotus Domino R5* (Morrison, Buckley, and Cappo 1999). According to that IBM paper, portals facilitate the following:

- *Discovery of people, organizations, and content in a meaningful context.* PAWS facilitates communication. Students may look up the telephone number of instructors, locate the e-mail address of fellow classmates, or participate in online class discussions.
- *User authentication, credentials mapping, and sensitive data encryption.* PAWS is secure. Accounts are created only for individuals having a valid relationship with LSU. Users attempting to access PAWS are authenticated via ID and password. The data presented to the user in the various applications are mapped to the user's credentials. Sensitive data transferred from the front-end

Figure 16.1 PAWS Gateway Pages

interface to legacy systems are encrypted using Secure Socket Layer (SSL) technology.

- *Personalization and customization based on the user's role in the community.* PAWS is adaptive. An individual's desktop changes as his or her relationship to the university changes.
- *Access to multiple heterogeneous data stores from a single point of service.* PAWS is a one-stop shop for university services. It provides a single point of service to multiple heterogeneous data stores, including enterprise systems, e-mail, and multimedia class resources.
- *Organization to help eliminate information overload.* PAWS categorizes its university services according to function and presents resources to the user in a two- window frame set, which provides a constant navigation frame.

PAWS includes enterprise, work group, and personal services. Enterprise services organize information internal to the enterprise for administrative benefit, often providing the interface to legacy applications. Enterprise services accessed via PAWS include the central university directory, electronic library reserves, midterm and final grades, current and potential degree program audits, and financial aid status. Work group services organize information and applications relevant to the user's specific project, team, or department. PAWS work group applications include a course management tool, a faculty newsletter, and the computer services support center system. Personal services organize an individual user's information and applications. Personal services include e-mail, an electronic planner, and personal Web pages.

For these reasons and more, PAWS is a portal. However, the argument that PAWS is a portal was inconsequential to the success of the project. In fact, that argument was made several months after PAWS was available. It is presented here for completeness. The important point is that the requirements for a digital infrastructure or a portal can be met only if they are well known and well understood.

Service Requirements

Today, the requirements for a digital infrastructure are best expressed in terms of the characteristics common to successful student services transformation projects. Beede (1999) distinguishes between the traditional model for student services and the new model for student services, with the new model employing services that are characterized as follows:

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- *One-stop.* Under the old model, processes such as admission and registration often required trips to multiple offices. The new model employs a one-stop center. The purpose of this center, whether physical or virtual, is to allow students to conduct business from a single location. In a physical one-stop service center, a single point of service is typically accomplished by using cross-functional work teams. In a Web-based one-stop center, a single point of service is often accomplished by providing the student with one log-in ID that accesses services from a variety of back-end systems. These systems often require log-in ID–password combinations that differ from the initial combination entered by the student. As such, the digital infrastructure must be capable of mapping the single log-in ID–password combination to the combinations required to access the diverse back-end systems. In some cases, systems using the same combination also require multiple log-ins. This happens, for example, if the systems are spread across multiple servers. In these cases, the infrastructure must pass information captured at the time of the initial log-in to the additional servers without asking the student to log in a second time.
- *Student-centered.* In the traditional student services model, processes were carried out from an organizational perspective. In addition to being cumbersome, this model often did not distinguish between individuals. In the new student services model, services are customized. Students see only those services that they are eligible for/required to see. This customization results in processes that are user-friendly and more efficient. It also requires that the digital infrastructure verify that students are who they claim to be and that it present to students only those services that they are eligible for based on their credentials.
- *Integrated.* Functional silos in the form of segregated departments and processes characterized the traditional student services model. The new model requires integrated systems and processes. In Web-based one-stop centers, this integration is a function of the digital infrastructure.
- *Available.* Under the new student services model, students have access to services when and where they need them. This means that the digital infrastructure must be available 24 hours a day, seven days a week. The process of acquiring access to the service must also be streamlined. Many commercial sites now allow users to create accounts instantaneously. Therefore, the expectation is that an account should be available within seconds/minutes of requesting its creation.
- *Responsive.* The old student services model was characterized by long lines. In the new model, responsiveness is key. Virtual lines are no more acceptable than physical lines. The infrastructure must be capable of supporting concurrent access during high-volume events such as registration.

The service characteristics and the resulting infrastructure requirements described above translate to the following implementation issues: account creation, security enablement, legacy integration, and session management. The success of the PAWS infrastructure at LSU can be attributed, in part, to the fact that these implementation issues were identified and addressed early in the development cycle.

Account creation. Unlike the implementation of traditional business systems, the implementation of Web applications targeted to a broad audience involves many variables beyond the control of the development team and the university. Therefore, successful implementations usually bring about a sense pride and relief that can very quickly turn into panic when the unexpected happens.

The applications initially available through the PAWS infrastructure typically would not have been considered high profile. The premier service available in the first several months following implementation of the PAWS infrastructure was e-mail. An existing e-mail system had been in place, so it was expected that migration to the new system would occur gradually. PAWS accounts would be created upon the request of the individual with whom the account would be associated. It was expected that these requests would trickle in a few at a time over several months. No one anticipated that instructors would require students to obtain PAWS accounts en masse during the first week of the semester. They did. A system designed to process tens of requests simultaneously was being inundated with hundreds of requests.

The short-term solution was to have the infrastructure team monitor the process 24 hours a day and intervene as necessary. The intermediate solution was to run the

performance-intensive components of the account creation process in parallel on several servers. The long-term solution was to issue accounts to students during spring testing and orientation sessions in a controlled manner.

Today, volume is no longer the issue it once was. Accounts exist for all currently enrolled students. Accounts for newly admitted students are created before they arrive on campus. Accounts for new employees are created during employee orientation. The lesson was well learned, however: expect the unexpected.

Security enablement. Services that require the university to protect the privacy of the individual and to protect the service from unauthorized access typically require three security mechanisms: authentication, credentials mapping, and data encryption.

- *Authentication.* Authentication is simply a process for confirming that individuals are who they say they are. There are different levels of authentication depending on the requirements of the services being provided. The typical level of authentication is a log-in ID and password. A less typical, but more stringent, level of authentication is the digital certificate, which is information that is appended to a message by a trusted third party and provides irrefutable proof that individuals are who they say they are. Early releases of the PAWS infrastructure employed standard browser authentication mechanisms. As a user moved from one server to another, the browser prompted the user for the log-in ID and password. The PAWS infrastructure grew very rapidly, however, and soon comprised a number of administrative and application servers. Users quickly became annoyed at having to log in several times in a single session. The challenge was to find a solution that required the user to log in only once per browser session. To solve this problem, LSU implemented a custom log-in mechanism that authenticates the user for each session by log-in ID and password and then issues a digitally signed security ticket that all servers in the PAWS cluster can interpret.
- *Credentials mapping.* Credentials mapping is the process of giving individuals access to certain resources based on their relationship with the university. Credentials mapping must be done at both the level of the application and the level of specific data records. For example, are the users authorized to access the registration application? If so, can they register anyone or just themselves? In PAWS, credentials mapping comprises two processes. First, PAWS account security is translated into legacy system security. For example, the PAWS ID is translated into a student ID number recognized by the registration system. Second, the student ID number is used to determine the content to which the student has access. For example, a student who is enrolled in a class that uses an asynchronous learning tool is given access to that tool. The ID number is then used to distinguish between the class instructor and the students so that the instructor has access to the grades of all the students and students have access to their individual grades only.
- *Data encryption.* The services delivered through an infrastructure may require the transmission of sensitive information, such as grades and credit

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	◘
▪ Redesigned processes	⊙
▪ Generalists/Specialists	⊙
▪ Cross-functional teams	⊙
▪ Measurable outcomes	◘
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	●
▪ Process oriented	○
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	●
Document Management	●
Back Office Process Redesign	●
Year Recognized	2000

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

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card information. Such applications use SSL technology to encrypt information transmitted from the user's Web browser to the server and vice versa.

Legacy integration. Typically, the services that make a portal popular and encourage repeat visits are those that are unique to that portal and that cannot be obtained elsewhere. Providing a central location for common services available from a variety of other sources may add to the convenience of the portal, but these are not the services that will propel the portal to universal acceptance and usage. It is fairly common, for example, to include a weather channel in university portals. However, many other sites provide weather information. Thus, weather alone will not keep the target audience coming back to the portal over and over again. On the other hand, the university is typically the only source for class schedules, grade reports, transcripts, financial aid information, paycheck information, and library resources. These services bring users back time and time again and typically require the portal to be integrated with back-office legacy systems.

The services most in demand at LSU, those that make PAWS "sticky," are implemented on an IBM S/390 mainframe running a transaction management facility. In the past, these systems were accessed only through the Information Management System (IMS) transaction manager via a "green screen" environment. In other words, the mainframe systems were accessed from dumb terminals connected directly to the mainframe. If students wanted to know the status of their financial aid, they had to call or visit the Office of Student Aid and Scholarships. A counselor issued an IMS transaction from a mainframe terminal to determine the answer. With PAWS, students issue these transactions themselves from a Web interface.

Implementing legacy system integration is not trivial. A decision must first be made as to whether the integration will be implemented through redundancy (upload/download), through asynchronous methods (e-mail), or through synchronous methods (real-time transactions). At LSU, the decision was made to access the legacy systems synchronously. In some ways, a synchronous implementation is the most difficult to build because it requires significant technical expertise and significant coordination between the parties responsible for the back-office legacy systems and those responsible for the digital infrastructure. Over the long term, however, it provides the greatest benefits to the target audience because transactions are issued in real time. Also, minimal presentation code is required on the front end. Therefore, the investment made to enhance and modify the back-office environment is leveraged to maintain the Web application.

Once the decision to provide synchronous access to legacy applications has been made, a second decision as to whether this access should be done at the database or transaction level must also be made. From a business perspective, this issue is important because integrating at the transaction level preserves the investment in previous systems development and ensures that the business rules encapsulated in existing systems will be carried out. However, technology providers often encourage integration at the database level because database integration technology is more readily available and easier to use.

At LSU, legacy integration is done at the transaction level. A custom interface on the Lotus Domino server accepts transaction requests to view/update legacy data from the Web and routes them through MQSeries to IMS on the enterprise server. An IMS program on the enterprise server processes the transaction and then sends the output back through MQSeries to the waiting application. Integrating the PAWS framework with legacy systems at the transaction level unlocked data previously vaulted at the source, provided a more secure and robust solution than directly accessing the database, and provided a means to leverage the extensive existing code base.

PAWS is special because it takes legacy integration a step further. The portal delivery application was upgraded to a real-time legacy interface. In the latest version of PAWS, individuals attempting to access their Web portal actually issue a legacy transaction that immediately evaluates the user's relationships with the university, determines the appropriate resource applications to present, creates a new portal output result, and displays it to the user. A copy of the portal output result is saved in a temporary (cached) database on the server. If the legacy system is unavailable for any reason, the cached copy is presented to the user.

It should be noted that legacy integration in the PAWS environment simply means building a pipe from the Web to a robust back-end environment that is highly integrated. It does not mean bridging disparate

back-end systems. Over the past two decades, LSU has built a suite of back-office systems that is already integrated. The registration system, for example, interacts with the facilities system to facilitate the scheduling of classrooms each semester. The registration system also interfaces with the human resource management system to facilitate the assignment of instructors to the classes scheduled. The advance billing process pulls information from the registration system to determine student fees. In total, the registration system networks with approximately 16 other administrative systems, including admissions, directory, human resource management, student health, student records, and treasurer's information, to satisfy administrative information processing requirements for registration. This integration eliminates the need for reconciliation and increases the quality of institutional data. It also simplified the requirement for the PAWS interface.

Session management. Services that require high-volume access to limited resources in a limited time frame present a particular challenge to the infrastructure. At LSU, one of these services is registration. The demand for many freshman- and sophomore-level classes typically exceeds available space. Consequently, students are often eager to enroll in these classes as soon as registration opens. The result is an extremely large volume of Web traffic in a short period of time. Left unregulated, these services would fail due to a deterioration of response time and browser time-outs.

To address this problem, LSU developed a two-component gateway process that limits access to the registration service to the number of users who can be processed effectively in a reasonable amount of time. This process is known as session management. In this scenario, a student attempting to register navigates first to the registration governor. The registration governor checks to see if any sessions are available. If sessions are not available, the student is asked to try again later. If sessions are available, the student is issued a registration ticket in the form of an HTTP cookie and redirected to one of the registration servers. The registration server validates the ticket and allows registration to proceed for a restricted amount of time. A student who exceeds the time allowance is informed that the session has expired and is instructed to return to the registration governor to obtain a new session ticket.

Session management emulates and extends the process used for telephone registration. The voice response unit allows for a maximum of 60 concurrent registration sessions. The PAWS session governor has allowed for as many as 600 concurrent registration sessions. Thus, while implementation of the Web-based session governor did not eliminate student frustration with a restricted course inventory, it did reduce this frustration somewhat by providing increased concurrent access to this inventory.

System Requirements

Some of the requirements for the digital infrastructure are determined exclusively by the services to be delivered through the infrastructure. Other requirements, while influenced by these services, are more basic and must be considered in the implementation of any new technology system. The systems analysts on the project team most often address these requirements. The decisions made regarding these requirements can have a significant impact on the overall cost of the infrastructure and on the ability of the infrastructure to deliver critical services in high stress situations. As such, it is appropriate that a brief overview of these issues be presented here. The issues to be discussed include selecting a technology for the infrastructure, designing an architecture that will scale, implementing a system administration scheme, providing for system availability, facilitating change management, and providing technical support.

Technology selection. Many factors come into play in choosing technology: What's already in house? What's available on the market? What funds are available? What have other people done? LSU followed a few basic principles in selecting the technology for its digital infrastructure. The primary goal was to build a quality infrastructure that could evolve over time and be maintained with limited people and resources. The approach taken to build the PAWS infrastructure was diametrically opposed to the more common "best of breed" approach that entails buying the "best" or recommended parts and then tying these parts together.

- *Use what's already available.* At LSU, the bias is to use technology that is readily available. Using existing technologies circumvents the issue of developing new skills and avoids unforeseen obstacles. In reviewing existing technology, though, it is important to consider the given

technology's life span. If plans are already in the works to replace a particular technology, that technology should, of course, not be used in deploying the new service.

- *Monitor technical developments closely.* At the same time that in-house technology is exploited to its fullest capacity, new technology developments are monitored closely. Every effort is made to understand new languages, products, and methods before they are integrated into the environment. The goal is to learn a technology's strengths and weaknesses and how it fits into the shop's tool set, and to determine whether it will survive in the long term. Will it gain wide industry acceptance? Does it have the potential to become a standard? If the answer to both of these questions appears to be no or doubtful, the technology is probably not a good choice, regardless of the promise it holds.
- *Standardize.* Another principle followed at LSU is to keep it simple. Avoid a "best of breed" approach that will require the maintenance of many different types of technology from many different vendors. At LSU, the administrative information systems are implemented using hardware and software from relatively few vendors. The benefit of this approach is that there is a reduced set of contacts for support, a reduced skill set required to get the job done, and a higher probability that all the components of the system will work together effectively.
- *Observe.* Determine the technology that successful projects have used and, conversely, the technology that unsuccessful projects have used. Observing what has worked and not worked in the past might quickly establish what really does work and what really doesn't work.

Scalability. A scalable infrastructure is one that can be expanded incrementally and cost-effectively without major disruption to the services provided through the infrastructure. Infrastructures can typically be scaled horizontally by adding a few machines at a time or vertically by upgrading the processing power or storage capacity of the machines already in place. The trade-off is typically between the cost of upgrading a very large server and the overhead (people and time) required to maintain numerous servers.

Some components of the PAWS infrastructure have been designed to scale horizontally. For example, a cluster of five desktop machines powers registration. If additional capacity is needed, additional machines can be added to the cluster. Horizontal scalability is an option for registration because multiple copies of the registration application can run in parallel without one instance of the application interfering with another instance of the application. Horizontal scalability is also the best choice for registration because the overhead required to support multiple servers is easily offset by the ability to increase capacity and make changes to the system with no disruption to this high-profile service.

Other components of the PAWS infrastructure are designed to scale vertically. A single server, for example, supports the grade posting application. As additional capacity is needed, the processing power and storage capacity of that server are upgraded. Vertical scalability is the best choice for this application because the number of grade sheets posted each semester is limited, the application has not been designed to run in parallel, and the overhead of maintaining multiple servers for this application cannot be justified.

System administration. System administration involves setting up policies and procedures for managing servers and disk space. Policies on disk quotas, account expiration, and appropriate use of the technology should be formulated and published early in the implementation life cycle to prevent conflict with customers later. Be prepared to explain the reasoning and logic behind these policies.

Policies and procedures regarding the security configuration of operating systems and software are particularly important. These policies should be defined and implemented before any applications are deployed. Many times, for example, the default security configuration of operating systems or applications software allows open access to the general public. Or a number of operating system services that are not needed by the student services applications are installed and started by default. Running default-system-level services not needed by the student services application creates unnecessary opportunities for hackers to break into the system. Other methods for gaining entry can be found through drive or network file system shares.

Availability. The acceptance of the infrastructure will depend, in part, on its reliability and availability. An infrastructure that cannot be counted on to deliver its resources when and where they are needed will not be

used. The time and energy invested in transforming student services is all for naught if the transformed services are not available to the target audience when needed or expected. Increasingly, the expectation is that these services will be available 24 hours a day, seven days a week.

Therefore, monitoring is critical. System monitoring facilitates predictable, reliable access to the services provided through the infrastructure. The PAWS project at LSU is monitored on three levels: hardware and operating system, application, and external.

- *Hardware and operating system monitoring.* The primary goal of monitoring hardware and operating system software is to detect failures in these components as soon as possible so that corrective action may be taken to restore the system in the least amount of time possible. Monitoring of this type also provides early warning of the need to upgrade hardware or software. Further, it can be used to track changes in the customers' use of the system.

  Many operating systems provide tools for monitoring the health of servers. Periodic monitoring of basic metrics such as CPU and memory usage is essential for maintaining the stability of servers supporting applications. Most hardware and many software systems provide a vast array of values that can be monitored. The metrics that are important for a given server/application system are identified through research of vendor documentation and experimentation. In addition, a number of third-party tools are available to facilitate more extensive automation of server monitoring. Ideally, data obtained from this type of monitoring—rather than crises related to response or availability of applications—should be the first indication of the need to upgrade hardware.

  Complex Web applications are particularly difficult to monitor due to the large number of variables that must be considered. Thus, system monitoring is usually combined with techniques and procedures that make the system more fault tolerant and highly available. Providing some fault-tolerance capability in hardware and application systems can reduce the occurrence and seriousness of hardware failures and reduce the time applications are out of service due to failure.

  One option to improve application availability is to employ redundant servers and processes. The servers in the registration cluster mentioned earlier all do the same job. In addition to allowing for increased throughput, the registration cluster provides a higher availability of the registration application. If one of the registration servers fails, the others remain active and registration proceeds, although at a somewhat slower pace. The end user might or might not notice that one server is missing from the cluster.

  An option for increasing the fault tolerance of servers and the services they provide is the use of advanced storage technologies such as Redundant Arrays of Independent Disks (RAID) and file replication. RAID technology is a combination of hardware and software that provides a method for aggregating a number of individual disk drives into larger storage volumes. RAID also has features that provide internal redundancy in anticipation of the failure of one of the individual disk drives. All servers handling production systems at LSU use RAID disk configurations.

  File replication software allows redundant copies of important files to exist in a system and ensures that they are kept synchronized. With file replication, if a computer serving an important file goes down, the replica of the file residing on another server can maintain access to the data. At LSU, the Lotus Domino product provides replication services to Domino-based applications. Extensive file replication capabilities also exist in the Microsoft Windows 2000 product in addition to stand-alone third-party tools.

- *Application monitoring.* Application monitoring, a bit more complex than hardware and operating system monitoring, is dependent on the specific functions that a system provides. This type of monitoring frequently involves the automated submission of requests for services from the application to test the application's availability. At LSU, one approach to application monitoring employs a tool called IPSentry. This tool tests for the simple presence of servers. Alternatively, it sends an interrogative request to the application and tests for the proper response. If the appropriate response is not received, alerts are generated.

- *External monitoring.* External monitoring ensures that applications can be seen outside the local network. It requires some means of accessing systems from outside the campus network. This type of monitoring detects problems with the Internet service provider or between the pipes coming into the local network and the application servers. At LSU, this type of monitoring is conducted periodically through various Internet service providers. It is conducted more frequently if there is a reason to suspect problems of this sort.

Change management. Change management is the process of facilitating and tracking changes to the infrastructure and to the services available through the infrastructure. It is particularly important for mission critical services developed and maintained by a team of analysts (e.g., registration). State legislative auditors periodically review the change management process at LSU.

Change management entails tracking who changed what and when. It also provides for backing out changes if that becomes necessary. Organization of file and folder structures, as well as procedures for moving modules from test to production, play a part in the change management process. The introduction of a new technology requires the introduction of new change management procedures.

The management process for changes to the PAWS infrastructure and to services offered through that infrastructure continues to evolve. Ideally, these procedures would have been established before the first PAWS application was implemented.

Technical support. Immediately following the implementation of PAWS, it became apparent that support provided by departmental offices responsible for the services available through the infrastructure and by the first-tier help desk at the computer center would not be adequate to address technical questions regarding the PAWS infrastructure. Therefore, LSU created the Application Service Center.

This center's primary purpose is to provide outreach and support for information technology enterprise applications developed by the Enterprise Solutions Group. The center addresses issues such as getting a PAWS account, changing a PAWS password, and setting up a browser to use PAWS. Support is offered electronically through the PAWS feedback line, verbally through the phone center, and in person at the computer center.

From January 2000 to December 2000, the Application Service Center answered approximately 7,500 phone calls and 2,600 e-mail messages. Based on feedback obtained from these customers, 90 percent rated the service as above average or excellent.

Measurements of Success

There are many different ways to measure the success of a digital infrastructure initiative. The effectiveness of LSU'S digital infrastructure was measured by conducting a survey, tracking requests for accounts, measuring use of the portal, determining use of portal applications, and conducting a return on investment study.

Survey. Perhaps the easiest way to determine whether a digital infrastructure is achieving its objectives is to ask. In February 1999, LSU conducted an online survey of visitors to its Web site and approximately 1,900 users responded. Two items spoke directly to the impact of the PAWS digital infrastructure.

Item 7 of the survey asked visitors to the site the following: "What services/resources do you use?" Responses, summarized in Figure 16.2, were an early indication that the digital infrastructure was moving in the right direction because the most popular services were either PAWS applications or prototypes of PAWS applications.

Item 10 of the survey asked the following: "What services would you like to see available through the LSU Web site?" Responses to this question, see Figure 16.3, confirmed the priority of the services being planned and developed at that time.

Acquisition of accounts. Another way to measure the success of a digital infrastructure is to track the number of requests for accounts and to monitor trends in these requests. Is the digital infrastructure as popular or even more popular this term than it was last term? Is it more popular with one segment of the target audience than another? If so, why? By understanding how the project is being accepted, resource requirements can be anticipated and adjustments can be made that will keep the project on the road to success.

For two years following its introduction, PAWS accounts were created only at the request of the student, faculty member, or staff person with whom the account would be identified. Thus, the number of accounts

What services/resources do you use?	
PAWS for E-mail	1447
Course Listings	1318
People Directory	1129
Registration Services	699
LSU Libraries	676
Electronic Reserves	543
Jobs Opportunities	233
Press Releases	148
Other	66
None	59

Figure 16.2 Responses to Item 7 of the Online Survey

What services would you like to see available through the LSU Web site?	
On-line Parking Requests	1086
Seat Locator for Stadiums and Theaters	1049
On-line Student Aid Application	966
On-line Bill Payment	896
On-line Student Aid Checking	810
On-line Admissions	785
Admissions Requirement Checker	715
On-line Housing Requests	624
Other	163

Figure 16.3 Responses to Item 10 of the Online Survey

created was a measure of the interest in the digital infrastructure. The number of PAWS accounts increased rapidly and significantly, indicating the tremendous potential of the project. A closer look at the profile of individuals requesting accounts indicated that the LSU student body would be the driving force moving the university toward the acceptance of this application.

Students began to recognize the potential of PAWS in the first semester that it became available. The student government passed a resolution in the fall of 1997 recommending to the provost that all freshman-level classes include an Internet assignment using PAWS. In the spring of 1998, the student government passed a second resolution endorsing PAWS as the virtual one-stop shop for the university. Both resolutions were initiated independently of the project team.

The next group to show interest in PAWS was the colleges. Various colleges gradually required their students to have accounts. Finally, facing record enrollment and the need to communicate up-to-the-minute details efficiently and effectively, the provost mandated that all students have PAWS accounts. Now, instead of being created on demand, accounts for students are created during spring testing, freshman orientation, and transfer student orientation. Accounts for new faculty and staff are created during employee orientation.

Utilization. The acquisition of accounts indicates general interest and facilitates the management of the digital infrastructure at a very high level. To measure the success of the project accurately, however, one must also consider how the services are being used. LSU measured the effectiveness of services by comparing the number of legacy transactions self-served through the PAWS environment with the number of transactions issued through campus offices.

Before the implementation of PAWS, the only transactions that were self-served were registration transactions issued by students through the voice response unit. As a result, the number of transactions issued from the PAWS interface is an indication of the acceptance of the project and of previously unmet demand for university services.

In the first full year that PAWS was available, 4 percent of all legacy transactions were issued through the PAWS environment. In 2000, approximately 20 percent of all legacy transactions, exclusive of those issued to display the desktop, were issued through PAWS (see Figure 16.4).

The numbers continue to grow. During the first week of the fall 2001 semester, more than 1 million legacy transactions were issued through PAWS. Approximately one-third of these transactions were requests to display the PAWS desktop; the remaining two-thirds were requests to view or update data in various legacy systems.

The effectiveness of PAWS is also determined by examining the effectiveness of some of the specific applications available through the interface. Three applications that have been tracked for some time include Registration, Grade Posting, and Semester Book.

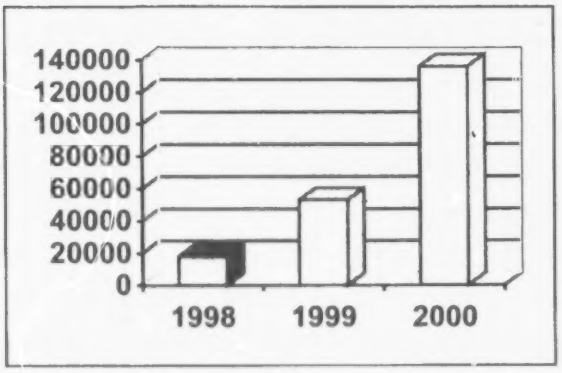

Figure 16.4 Number of IMS Transactions Issued Through PAWS

Registration. The schedule request application was the first component of the registration process made available to students through PAWS. In its first semester—fall 1998—20 percent of requests to add or drop courses were initiated through PAWS. These requests increased to 30 percent the following semester and to 40 percent one year after implementation. In fall 2001, 66 percent of the requests to change classes during the first week of school were initiated through PAWS.

Grade Posting. The Grade Posting application, developed in cooperation with the university registrar, allows instructors to post both midterm and final grades on the Web. In spring 1998, approximately 166 instructors posted their grades via PAWS. In spring 2001, the number of instructors using PAWS to post their grades grew to 1,316 (see Figure 16.5).

Semester Book. Another heavily used application is Semester Book, an application designed for both faculty and students. Made available to the entire campus in the fall of 1999, it is a course-management tool that distinguishes itself from other asynchronous-learning and class-management tools in the following ways:

- The focus is on the semester rather than the course. It is called "Semester Book" because it was modeled on an instructor's grade book. Often, instructors use one grade book per semester rather than one grade book per class.
- It is highly integrated with the legacy applications. As students drop and add classes, the corresponding data in the Semester Book and corresponding links on the student PAWS desktops are updated accordingly.
- It is a PAWS application. The same ID and password that provide access to the PAWS environment also provide access to Semester Book.
- Students can monitor their progress in the course and obtain class materials from any Web browser.

At end of September 1999, one month after Semester Book became available campuswide, 280 classes with a total enrollment of 9,886 students, used it. In spring 2001, 900 classes with a total enrollment of 19,323 students used this application (see Figure 16.6).

Return on investment. Another way to measure the success of the infrastructure initiative is to calculate return on investment. International Data Corporation (IDC), an information technology analysis firm, projected that LSU would obtain a 78 percent return on investment on PAWS in three years. This projection was calculated using system utilization data, expenditure

	2S/98	1S/99	2S/99	1S/00	2S/00	1S/01	2S/01
Departments	15	67	89	94	98	101	100
Instructors	166	374	753	962	1,021	1,140	1,316
Grade Sheets	812	1,900	3,588	4,711	5,151	5,608	6,352

Figure 16.5 Number of Instructors Posting Their Grades on PAWS

	1S/99	2S/99	3S/99	1S/00	2S/00	1S/01	2S/01
Departments	13	10	5	41	48	58	67
Sections	58	41	16	315	444	670	900
Students	1,106	1,782	551	9,927	13,704	17,402	19,323
Seats	1,182	1,905	568	12,808	19,695	27,210	34,713

Figure 16.6 Use of Semester Book on PAWS

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data, and salary data provided to IDC by LSU. IDC also indicated that, in 1999, LSU provided $1,134,000 in services through PAWS that it would not have been able to provide through traditional methods. In 2000, IDC projected that LSU would provide $2,490,000 in services. This projection was based on an average of 50,000 PAWS transactions per week. In 2000, LSU averaged 136,000 PAWS transactions per week.

Conclusion

The primary goal of the PAWS project was to make technology relevant to students, faculty, and staff by providing access to mission critical services through the Web. The success of the project goes well beyond the metrics discussed above. In spring 2000, students voted to spend $600,000 of funds collected through a self-imposed technology fee to upgrade the PAWS infrastructure. In spring 2001, the candidates for student government president ran on platforms highlighting potential new services that could be made available through PAWS. Obviously, much progress has been made: a survey conducted in the early 1990s indicated that students did not find technology relevant to their educational experience.

Three critical factors contributed to the success of the PAWS initiative. First, the requirements for the digital infrastructure were well known and well understood. The features needed to seamlessly increase the number of services offered through PAWS over time and to accommodate increased use without degradation in performance were identified and implemented early in the development of the PAWS application. Second, the talent and dedication of the project team was such that there was no obstacle that could not be overcome. Third, PAWS leveraged access to a robust legacy environment that was already highly integrated. There was no need to bridge disparate applications on the PAWS front end because the applications already communicated with each other on the back end.

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Founded in 1860, Louisiana State University serves the people of Louisiana, the region, the nation, and the world through extensive, multipurpose programs encompassing instruction, research, and public service. LSU, located in Baton Rouge, is the flagship institution of higher education in the State of Louisiana and is one of only 25 universities nationwide holding both land-grant and sea-grant status. It is a cosmopolitan community of more than 34,000 faculty, staff, and students. Enrollment peaks in the fall semester at more than 31,000 students and drops by about 8 percent in the spring. Summer term enrollment totals about 11,500. Curricula leading to bachelor's degrees are offered in 73 major fields, master's degrees are offered in 75 major fields, and doctoral degrees are offered in 55 major fields.

17

Ball State University

Web-Stop Shopping

Donald D. King, Jr., Michael E. McCauley, and Phillip M. Shaffer

Overview

Recognizing the utility of the World Wide Web as a communication and business practice delivery system, Ball State University faculty and administrators initiated a project to provide better student services. This "Web-stop shopping" effort brought together such areas as academic advising, admissions (undergraduate and graduate), bursar, career services, continuing (distance) education, counseling, financial aid (and collections), housing, registrar, student activities, and computing services. Individuals from these areas, in conjunction with several faculty members, collectively designed Web-based student service applications to assist students in conducting routine university business. Scenarios describing the use of our Web applications appear below to provide a real sense of how the system works.

In 1994, Ball State's president, John Worthen, created a university-wide committee, chaired by the vice president for student affairs. The committee's goal was to review current student service processes and improve them using, when appropriate, cutting-edge technology. With the Web as the vehicle through which these services were to be delivered, the committee provided direction for the various student service agencies and reviewed practices and procedures. The intent was ultimately to "Webify" these practices and operations to accommodate student needs. Major objectives were to reduce long lines and bureaucratic red tape, streamline processes, and capitalize on the ease and timelessness of Web technology to bring appropriate information interaction to our students.

The student services Web application initially focused on the following five major categories (see Figure 17.1):

- *Advising matters:* academic advising, automated course transfer system, degree audit system, and graduation application
- *Course matters:* blackboard, course registration and add/drop, course planner (schedule of classes), course request (advanced registration), grade book, viewing of grades, and viewing of class schedule
- *Housing:* housing sign-up or room and roommate selection, residence hall information, and university apartments

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Michael E. McCauley *is director of academic systems at Ball State. He is active in the National Academic Advising Association (NACADA), has co-authored monographs, is a faculty member for the Academic Advising Summer Institute, and has made conference presentations. He currently serves as the resource person for the statewide transfer and articulation system, sponsored by the Indiana Commission for Higher Education.*

Phillip M. Shaffer *serves as a senior programmer/analyst in University Computing Services at Ball State, where he has been responsible for developing distributed systems. His primary duties include the design, development, and implementation of Web-based applications for student services and administrative functions.*

- *Jobs:* alumni job network, career planning/job search, employer interviews, on- and off-campus jobs, resume writing, and full-time referrals
- *More services:* bursar, change of address, counseling and psychological services center, financial aid awards, learning center, ride board (enabling students to share rides home), student health education, student voluntary services, and testing lab reservations

Using current and future technologies, the project was designed to provide enrolled students with automated, Web-based information, with a portion of student service business available on a 24-7 basis. The following were the major objectives:

- Determine proper course selection from the degree audit, then access catalog information (such as the course description/prerequisite).
- Execute Web-based advanced registration and drop/add.
- Plan course choices for future semesters and provide a vehicle for curriculum management.
- Determine proper courses for enrollment at other institutions during the summer for application to Ball State degree/programs.
- Enable the viewing and printing of grades and class schedules.
- Monitor progress (grades) in each class, collect assignments, and communicate with the professor and classmates.
- Allow students to apply for graduation via the Web.
- Provide a vehicle to display pertinent academic advising information.
- Create Web-based room and roommate selection in residence halls for the ensuing year.

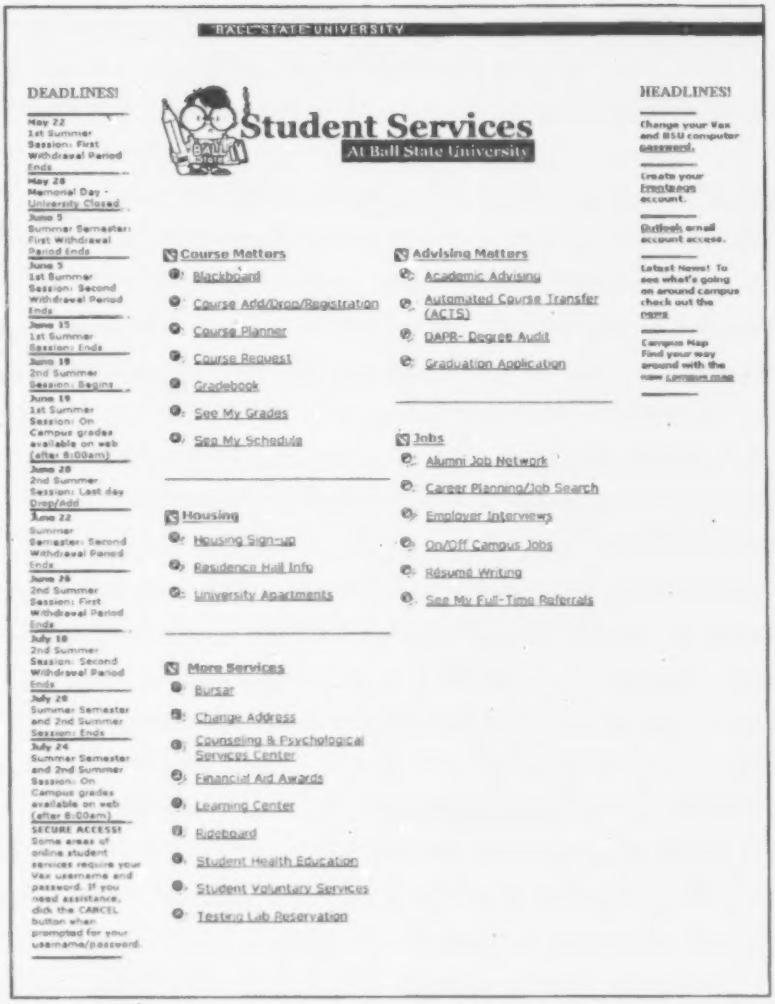

Figure 17.1 The Initial Student Services Web Application

- Provide career planning information, including resume writing, on- and off-campus job availability information, job search capability, integration of alumni with student candidate qualifications, job referral notification, and interview scheduling with potential employers.
- Provide a Web-based address update application.
- Enable access to individual financial aid awards.
- Describe fee brackets, payment plans, and fee payment calendars.
- Provide information regarding academic assistance (tutorial) programs, along with workshop calendars and frequently asked questions.

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- Provide a Web-based vehicle for faculty, staff, and administrators to access vital student and academic information, such as class lists, grade distribution, degree audit, and transfer course equivalents.
- Establish an information vehicle for health education (substance awareness and abuse), community service activities and opportunities, and transportation between home communities and Ball State.

The primary goals were to reduce traffic in various student service areas and answer routine questions that had previously monopolized the time and effort of our frontline personnel. With the Web designated as the primary communication vehicle, cooperative efforts among the student service areas (academic advising, bursar and loan collection, career planning and career services, counseling, housing, financial aid, registrar, student academic support services, and student activities) and computing service personnel commenced in 1995. These efforts ultimately culminated in a one-stop, Web-based shopping application by the fall semester 2001.

After some discussion of the various student services, the red tape sometimes generated, and the need to clear bottlenecks, members of the reengineering committee were divided into small groups and directed to visit various student service areas with predefined, typical student problems or tasks to accomplish. This exercise heightened the awareness of upper- and mid-level administrators of the frustrating experiences students encountered as they attempted to conduct business with student service offices. Committee members were not only shuffled frequently from one office to another (and often back to the original office), asked to complete different forms with the same information, and subjected to other time-consuming processes, they also gained first-hand knowledge of just how tedious, redundant, and time-consuming our processes were. Committee discussion then focused on how business was conducted, who needed cross-training, how the same services could be restructured to reduce irritation, and how to use the Web as a vehicle to inform and execute typical processes. The reengineering effort took on a campuswide perspective, although members of the respective offices developed each application. No formal assessment was made before the project began.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	○
One-Stop Service Centers	●
• Redesigned processes	○
• Generalists/Specialists	○
• Cross-functional teams	○
• Measurable outcomes	○
Web Portal	○
• Personalized	●
• Customized	●
• Community oriented	○
• Process oriented	○
Service Support Center (telephone/e-mail)	○
Customer Relationship Management (CRM)	●
Document Management	○
Back Office Process Redesign	○
Year Recognized	1996

● In production
○ Implementing
◐ Planning
⊙ Designing
⊗ Not intended

The discussions culminated in the development of the "Web-stop shopping" concept. Although still in an expansion mode, many vital student services have been converted to Web-based applications, making the prospect of waiting in line, calling an administrator/faculty member, and completing paper forms a thing of the past. Following is a description of the student service home page, the Web applications currently in operation for our students are listed. (Figure 17.2 lists development and deployment dates for these applications.) Other applications, such as scheduling an advising appointment, accessing billing information, paying fees via the Web, receiving electronic signatures (approval for exceptions and permission for enrollment), and ordering and purchasing text books, are being considered for the future.

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Service	Development Period	Put into Production
Advising Matters		
Academic advising	January–July 1998	August 1998
Degree analysis progress report (degree audit)	January 1986–August 1987	August 1987
Automated course transfer system	January 1996–April 1997	May 1998
Graduation application	August 1998	January 1999
Course Matters		
Add/drop	October 1999	December 1999
Blackboard	June 1999	August 1999
Class schedule	October 1999	December 1999
Course planner	January 1997	July 1997
Course request (advanced registration)	September 1999	October 1999
Grade book	June 1996	January 1997
Grades	December 1998	March 1999
Housing		
Housing sign-up	December 1998	February 1999
Residence hall information	Continuous	Continuous
University apartments	Continuous	Continuous
Jobs		
Career alumni network	June 1997	August 1997
Career planning/job search	Continuous	Continuous
Employer interviews	Continuous	Continuous
On- and off-campus jobs	June 1997	September 1998
Resume writing	Continuous	Continuous
Full-time referrals	June 2000	July 2000
More Services		
Bursar	Continuous	Continuous
Change of address	January 1999	April 1999
Financial aid awards	April 1999	April 1999
Learning center	Continuous	Continuous
Ride board	October 1998	March 1999
Student health education	Continuous	Continuous
Student voluntary services	June 2000	August 2000
Testing lab reservation	December 1999	January 2000
BSU @ Work	July 1999	December 1999

Figure 17.2 Timetable for Development and Deployment of Web Applications

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Advising Matters

- *Academic Advising.* This information site is maintained by advisors and identifies specific student advising groups (freshmen, adults, honors, upperclassmen, undecided, and athletes) and offers direction for advising resources and personal contacts. Additionally, advising support tools (degree audit, transfer course equivalencies, and graduation applications) can be accessed through this site. Registration support systems (long-range and short-term course planning, advanced registration, and drop/add) are an integral part of this site as well.
- DAPR—Degree Audit. Through Degree Analysis Progress Report (DAPR), students monitor their academic progress toward completion of degree requirements from any Internet-connected computer and also shop for alternative majors/minors, simulate course enrollments, and project grades that they might earn. The degree audit notifies students of when to apply for graduation and lists other noncourse academic requirements for graduation.
- *Automated Course Transfer* (ACTS). The Automated Course Transfer System (ACTS) was designed primarily to support transfer student recruitment efforts. Native students also use ACTS frequently to determine course equivalents offered at institutions in their home communities. This application permits students to identify positive course equivalencies for summer enrollment at other institutions and dramatically decreases the need for departmental contacts and permission before enrollment.
- *Graduation Application.* This is a simple online form that permits students to file an application for graduation. It is linked to our graduation/verification system and apprises faculty and academic advisors of graduation application submissions. Advisors review each degree audit and then follow up with a letter (and frequently e-mail) notifying each student of the remaining requirements to be fulfilled in the final semesters for graduation.

Course Matters

- *Course Add/Drop/Registration.* Students can easily use this application to add or remove courses from their schedules before classes begin and through the first three days of classes. Course Add/Drop/Registration, DAPR—Degree Audit, and Course Planner were all created to work together to allow a student to find out what courses he or she needs to take and to register for them.
- *Blackboard.* Blackboard provides a complete course tool that instructors use to disseminate material, such as class notes, course information, and schedules, to the students in the course. Blackboard has real-time and delayed conferencing forums as well as chat room features.
- *See My Schedule.* This application displays current or future course schedules as well as "Week at a Glance," a feature that graphically illustrates each hour of each day for easy reference.
- *Course Planner.* This tool allows students to look at the courses available for a given semester, build their own shopping list of courses, and resolve any possible conflicts. All classes are listed, and the list is never out of date because it is displayed directly from the main course master.
- *Course Request.* Tightly integrated with Course Planner, this feature can take the list of courses that a student has selected and automatically request them for the following semester. It also validates that the student is eligible for the course if permission is required.
- *Gradebook.* This application permits students to get a listing of all of their assignments and their current score in a class, e-mail other students, and view other vital course information. This is one of Ball State's most heavily used Web applications, with up to 35,000 hits per day. It has been load tested to 150 simultaneous users.
- *See My Grades.* Students use this application to view their final grades in any course that they have taken at Ball State.

Housing

- *Housing Sign-Up.* This system allows students to search for a room in the residence hall of their choice and sign an electronic contract. Students are allowed to sign up by a prioritized ranking system, based on their seniority in the residence halls. If returning students want the same room, a one-click feature allows them to keep their same

room. Otherwise, they can use the search feature to look for a different accommodation.

- *Residence Hall Info.* These are informational pages giving students everything they need to know about living on-campus. Students can receive information on individual halls, menus available that day, and special news and events as well as enter requests for repairs in the "Fix My Home" section.
- *University Apartments.* These informational pages give details about the apartments, tell how to register for an apartment, and provide many notes about apartment living.

Jobs

- *Alumni Job Network.* At some point after graduation, alumni might be able to assist other alumni in finding jobs, while simultaneously helping their place of business find qualified candidates. This network is an automated system, allowing alumni to build a virtual network of contacts.
- *Career Planning/Job Search.* The information section of our Career Center gives students a very large resource site that assists them with their placement after graduation.
- *Employer Interviews.* This registration system allows students to schedule an interview with one or more of the hundreds of employers who visit our campus each year for recruitment. They can contact the potential employers and submit application and résumé materials in one place.
- *On/Off Campus Jobs.* Ball State's Viewjobs system allows students to find part-time work on campus and student-schedule-friendly work off-campus in one searchable location. All on-campus student positions are hired through Viewjobs.
- *Résumé Writing.* This information resource is being developed over a period of time and is continually enhanced. It is a comprehensive guide to creating a résumé and using it to secure an interview as well as using it in an interview.
- *See My Full-Time Referrals.* Ball State's Career Center sends information about qualified students to employers. After this information is sent, a student can use this application to view the employers who have received his or her vita.

More Services

- *Bursar.* This informational page details student fees, payment plans, important dates, and ways to reduce fees via financial aid or government programs. An informative section on Cardinal Ca$h is used on-campus to purchase goods and services (mostly food items).
- *Change Address.* This application allows students to change their local or home address in three clicks. It is a vast improvement over the old paper process that required a staff member to enter the new address by hand. It also allows the new address to be verified against the Group1 postal software to ensure the lowest postal rates for mailings.
- *Financial Aid Awards.* This system allows a student to view an up-to-date listing of any financial aid awards that he or she has received. As soon as notification of an award arrives at the financial aid office, it is displayed on this page. Security is maintained through our standard login process, which is used for several student service applications.
- *Learning Center.* Ball State's Learning Center provides students with a place to receive free tutoring in order to understand difficult course material. This informational page details areas of tutoring that are available, provides schedules for workshops, and lists frequently asked questions. A "Secrets to Success" section is vital to ensuring that students do the best they can in their coursework and therefore achieve the best possible college experience.
- *Rideboard.* Many of the university's students travel home for the weekends or to other areas for recreation. Rideboard allows those students to post or search for other people interested in going to the same location and sharing the ride (and the costs).
- *Student Health Education.* This informational page gives students many tips on maintaining positive health behaviors, including information on sexually transmitted diseases, tattoos, piercings, alcohol, and other substances. Ball State's Health Education Division strives to help students protect themselves while enjoying the university experience.

- *Student Voluntary Services.* A major part of becoming a well-rounded individual is helping others. Student Voluntary Services strives to help students with this goal by giving them several community service opportunities. Students as well as local United Way volunteers can search for an opportunity that is suited to their skills and register with just a few mouse clicks. More than 10 percent of Ball State's student population registers for community service each year.
- *Testing Lab Reservation.* Many instructors have found it useful to give exams through a Web-based testing tool, thus giving them more class time to teach without having to proctor exams. This reservation system allows students to reserve a computer in a lab environment, where a full-time proctor oversees their test. Automated tools are also given to the proctor to assist with enforcing time limits and seating arrangements.

BSU@Work

BSU@Work ties into many of the applications that we have created for Ball State students, allowing advisors access to information exactly as the student would view it. BSU@Work is a comprehensive staff support system allowing staff and advisors to view such things as current enrollment, class lists, advisor lists, and historical information regarding academic programs, grade distribution, and student profiles. Administrators are granted access to employee information (individual as well as aggregate statistics with drill-down capabilities).

Scenarios

To understand how our Web-based student services assist students, we have developed the following scenarios to illustrate the integration of these services.

Web-stop shopping scenario #1: Mark. Mark is a typical junior, majoring in computer science with a busy agenda of things he needs to accomplish this afternoon so that he can join a social gathering later this evening. He's supposed to meet some friends at 8:00 PM, and it's already 6:45 PM. He hopes he'll be able to handle all of these items through the student services Web page because most of the university staff have already gone home.

First, Mark needs to check his grades to see how he fared on the test given in his two o'clock class. Fortunately, his professor makes use of Scanning Services and *Gradebook*, so the test has already been scored and entered into *Gradebook*. Unfortunately, he earned only an 85 percent, which happens to be a B- in this course. This drops his overall grade down to a B+. As he is looking, Mark notices that the instructor has entered a new assignment into *Gradebook*; he clicks on the assignment and finds that it is a group project, so he goes to the list of students in the course and e-mails three people to see if they would like to work with him on the project.

Next, Mark needs to sign up for a room for next year. Because he is a junior with a premium two-year contract, he is one of the first students allowed to use the system. He reads the *Residence Hall Info* pages and then goes to the *Housing Sign-up* system to select a single room in Baker Hall. He then decides on his meal plan and room amenities and signs his continuation contract. Thinking back to his freshman year, he can't imagine how he ever managed requesting a room by submitting a form and waiting a month to find out his room assignment.

Mark needs to get several more things done and it's already 6:53! After checking his *DAPR—Degree Audit*, Mark finds that he can click on the courses that he needs to request for fall. Doing so takes him directly to the *Course Planner* Web page to see what times are available. After making a few selections and placing them in his preregistration list, he moves to *Course Registration*. All of the courses he wants are offered and available except for his internship course. He will have to talk to the department chair and receive permission for that later and then add it to his course request. The department chair can enter the permission right into the system, so Mark will be able to enroll immediately after the meeting. While he's thinking of courses, he checks his summer schedule and, to his dismay, finds out that even though he got into the database design course he's been wanting to take, it is scheduled for 7:30 AM! Mark knows his general condition at that time of the morning (asleep) and looks once again at the schedule of courses. Fortunately, the afternoon section has had some withdrawals, and he uses the *Course Add/Drop* application to move to the 4:00 PM section, which should be perfect for him (right after lunch).

Just a few more things to do and he will be finished. Because his parents have just moved, he really should update his home address; fortunately, he can do that on

the student services page as well using the *Change Address* application. After a few clicks, his home address has been updated and he can even tell his parents what their zip+4 is now. Thinking about his parents reminds Mark that they have been nagging him to find out if he received any of the grants for which he applied. After clicking on the *Financial Aid Awards* page, he finds out that he not only received a grant, but it was for more than his tuition bill! He'll be getting a check that he could use for books (or more likely to take his girlfriend to a restaurant in the village).

Mark then remembers that his psychology class requires him to participate in experiments. After clicking on the psychology experiments page, he finds a Web-based survey that can be proctored in an exam lab. He registers for that, then moves to the testing lab reservation to find that there is an open slot at 7:00 PM, which he registers for, reserving 30 minutes for the experiment. Then, with only three minutes to spare, he dashes off to the testing lab to complete his experiment.

At 7:30 PM, he's completed the experiment but has been thinking about his girlfriend, who is volunteering at the American Red Cross. He goes back to the student services page, clicks on *Student Voluntary Services* , does a quick search, and finds the time that he knows his girlfriend is working. Fortunately, there are still three openings at that time, so he registers. He also reads that *Student Volunteer Services* provides transportation for volunteers; however, they won't provide transportation back to his hometown. Mark makes one last click before he goes back to his room. On *Rideboard*, he finds out that someone who wants to carpool to his hometown lives only two miles from his parents' new home. So he sends an e-mail asking to share expenses for the trip home.

In just over 45 minutes Mark has changed his home address; checked his grades, schedule, and financial aid awards; registered for classes; changed sections of a class; registered for a room next year; inquired about a carpool; set up a group for a class assignment; and signed up to volunteer at the American Red Cross, not to mention finding, registering for, and completing a 30-minute homework assignment. This has been a very productive time for Mark, and now that he has completed all of these tasks (at a time when most of the university staff is away), he can relax and enjoy the evening. He has plans to visit a new establishment that he read about in the Web version of the student newspaper.

Web-stop shopping scenario #2: Mary. Another Ball State student, Mary, has a list of things she'd like to accomplish today. She will graduate at the end of the fall semester, so she begins by accessing the student services Web page and clicking on *Graduation Application*. She verifies that her home address is correct. (If it were not, she could, with a single click, go to the *Change Address* page to correct it.)

Mary knows that she will work at home during the summer, but to graduate on time she will need to take one or two courses. She decides to find out if she can take those courses at a local college near her hometown by checking the *Automated Course Transfer (ACTS)* link. Once logged into the system, she selects the hometown college and the courses she would like to take in the summer and learns that four of the five courses she selected will transfer and count toward her major at Ball State. The other course will transfer but not apply to her major. She selects two of those courses and proceeds to the *DAPR—Degree Audit* page, where she enters the two courses into the "course shopping" option and the grades (As, of course) that she expects to earn. As a result, she discovers that she will need to take only three classes in the fall to graduate.

Now that she has taken care of her graduation requirements, she can start thinking of more important things, like a job once she graduates as well as one for the fall semester. She clicks on *On/Off Campus Jobs* and finds an interesting position performing database maintenance on the Ball State Art Museum database. Mary reads that the museum has spent nearly four years cataloging its 11,000+ artifacts and developing a Web-based search system that allows users to do keyword searches and find very detailed information about an artifact as well as several images of the item.

Mary now turns her attention to postgraduation employment. With a click on the *Employer Interviews* page, she finds out how to schedule an on-campus interview. In just a few minutes, this comprehensive database allows her to discover several interesting opportunities that may lead to an exciting career. While she's there, Mary registers for the candidate referral service. This will allow Ball State's Career Center to send her résumé to potential employers who might need someone with Mary's degree and experience. Mary does not know it yet, but when she checks the *See My Full-Time Referrals* page next week, she'll learn that her

résumé was sent to three companies. And one of them was a direct request from a company with which she has an interview scheduled.

Mary continues to read the *Career Planning/Job Search* pages to find additional tips on landing the perfect position in a great company. One of the things the site stresses is making a good first impression, which means she will need to prepare an outstanding résumé. Realizing this, she clicks on the *Résumé Writing* page and, to her dismay, learns that a typical employer spends about 15 seconds reviewing each résumé to determine the first interview group. Mary has the knowledge of Ball State's Career Center at her fingertips and can learn how to make those 15 seconds result in a first interview opportunity, followed by, she hopes, a second.

Web-stop shopping scenario #3: Brian. Brian, a department chair at Ball State, must handle several things for the students and faculty in his department. In about 20 minutes, a student named Mark is due in his office to discuss continuing an internship. Since the department bases all internships on past performance, Brian decides to see how Mark has been doing in his classes. He starts with BSU@Work and pulls up Mark's grades for last semester. Mark's grades look excellent, so Brian decides to run a *DAPR—Degree Audit* to find out how many internship credits Mark has already earned and how many he needs to complete. After seeing that Mark has earned eight of the 12 hours he needs to complete his internship, and checking Mark's schedule to see that he isn't taking too many hours next semester, Brian feels that Mark probably deserves permission.

In another matter, Brian must get some demographics on his department to respond to a survey; fortunately, he can do that within BSU@Work as well. After clicking on *Workforce Info*, Brian selects department totals and instantly has access to information about the gender, race, and age range of the people in his department as well as whether they are tenured. He can even see an average salary, charts of each piece of information, and drill-down options to see the "real" people who make up each statistic. Brian pauses and recalls how time-consuming these surveys were when they had to be generated manually.

Impact

Figure 17.3 illustrates the impact that these Web-based systems have had on our students. The statistics support the premise that the Web applications are beginning to be commonplace among the computer uses of our students.

It is an accepted fact that students today are well versed in Web usage and are applying their knowledge to the student services offered on the Web by Ball State. To accommodate increased usage in the future, our data center personnel are considering acquiring additional bandwith (and another T-1 line).

The success of the Ball State student service endeavor can be attributed to four major factors: executive-level administrative support; knowledge and expertise of data center personnel; a cooperative working relationship among student service areas and the data center; and communication with and among all areas involved. The project plan was developed by asking each student service area to provide a priority

Automated Course Transfer System	
Institutions	1,802
Course equivalencies	30,000
Transfer student applications	40 percent increase over previous year
New transfer students enrolled	97-student increase over previous year
Degree Audit, Course Request, and Add/Drop	
Transactions	More than 1 million (April 2001)
Course request (advanced registration)	7,956 students (October 2000)
Gradebook	
Academic year, 2000	484,000 (45 percent increase over previous year)
Housing Sign-up	
Students	2,767 (45 percent increase over fall 1999)
View Jobs	
Main page hits	156,000
Job searches since inception	205,000

Figure 17.3 Impact of Web-Based Systems on Students

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listing of each function needing a Web application. The lists were compiled and disseminated, then prioritized by the reengineering committee. Data center personnel then developed applications in cooperation with individuals in each student service area. Each application was reviewed in a test environment, then placed into production.

Future Plans

Ball State is committed to expanding its student service Web applications and is presently participating in the installation, development, and implementation of an integrated student information system. Concurrently, an effort is under way to develop an integrated Web portal to enhance the acquisition of relevant data for individual users. The Web portal development will enhance the ability of students, faculty, administrators, and staff to complete a variety of necessary tasks in a minimal amount of time. Recruiting of transfer students for fall 2002 will be enhanced by the use of our ACTS via personal data assistant (PDA). The transfer data made Web-accessible by ACTS has been extended into the mobile computing platform for use by admissions personnel while in the field. The ACTSpalm Index provides quick, on-the-spot answers to course equivalency questions posed by potential transfer students without the inconvenience of a bulky and heavy laptop computer. The ACTSpalm Index is fully searchable and comes configured with a number of filters for masking information by field (state, institution, or department, for instance). Additionally, the views and filters of ACTSpalm are customizable by the end user to ensure the best possible level of comfort with the application, though the equivalency data itself is locked and protected from accidental changes. The transfer data encapsulated in ACTSpalm is static and bereft of the logic-driven component that places the equivalency information in the context of a degree audit. However, the data are easily and automatically updated through the daily synchronizing of a PDA to its host computer. Updates reach this host computer via e-mail.

Further, two projects, electronic calendar and electronic notebook, are in the discussion stage. The development and implementation of these Web-based applications will improve the effectiveness of our faculty and academic advisors. The Web electronic calendar will permit students to establish an appointment with an advisor and identify the nature of the appointment. The system will generate the appropriate length of time based upon user-defined specifications and permit the advisor to prepare for the appointment well in advance of the scheduled session. The Web electronic notebook will provide a storage vehicle onto which advisors will post the contents of an advising session. It is anticipated that the system will provide referral tracking and will be the basis for data collection for the advising office.

Ball State University

Ball State University is a medium-sized, state-supported institution with an enrollment of more than 18,000 students. Its seven colleges offer a wide range of undergraduate and graduate programs, housed within 51 academic departments. Additionally, Ball State possesses an Honors College for academically talented students and a University College in which reside academic advising, academic systems, learning center, supplemental instruction, core curriculum (general education), and athlete support services.

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18

Brigham Young University

A Web-Based Freshman Advising and Registration System

Gary L. Kramer, Erlend D. Peterson, Clark Webb, and Patricia Esplin

Overview

The central focus of Brigham Young University's Web-based freshman advising and registration system project was to encourage and support, through online and related materials, academic advising and registration of incoming or entering freshmen. The goal was to help freshmen look at the big picture of their academic career—understanding what the course requirements are, how they can be met, and when they should be taken. Once they have logged onto the system, freshmen immediately find an array of academic advising resources available to them.

Following are the primary features of the system:

- A biographical student summary includes major selected, advisement information, and assigned registration time.
- A menu of key advising sources includes access to advanced placement exams completed and the application of credit to BYU requirements, class schedule, catalog, and change of major information.
- There are five sequential steps to complete the advising process and, thus, registration.
- There are course options for each required area, representing the student's declared major and preparation, such as math courses completed in high school.
- Students have the option to change their major until the first day of school. After a student has clicked the change major button, a listing of all majors is displayed (see Figure 18.3). A change of major automatically realigns the planning steps with the new major. Once the student selects a major, the academic plan for that major is automatically displayed.
- A preliminary assessment for language proficiency is integrated into the system for students to

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Clark Webb *is the associate dean of General Education & Honors—the Freshman Year, at BYU. He has published several articles and books on both university and K–12 education. His principal research interest is college teaching and learning. His principal leisure interest is reading Dante's* Divine Comedy.

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determine at which level they should begin language classes.

- Courses selected from the options provided in each step automatically populate the advising summary (see Figure 18.4). Students use this page to register for classes and can drill down to specific course information about each step.
- Instructions are provided for making the transition from advising to registration. Students, however, may not begin the registration process until their assigned time.
- The program is integrated with Academic Information Management (AIM), BYU's academic information and registration program for all students. (See also Kramer and Peterson 1999.)

Chapter Focus

Over two years beginning in 1999, BYU pursued the charge of improving its procedures for freshman advising or planning and registration. The results are new, consolidated written materials, a Web-based planning and registration system, and increased advisement outreach efforts.

The work reported in this chapter centers on providing an answer to the question: Did the university provide a straightforward, accurate, and integrated planning and registration system that is easily accessible, yet personal, and that addresses the academic advisement and high-school-to-college transition needs of freshmen? Is the system both high touch and high tech? These principal questions spawned the following three specific areas of inquiry:

- Effective communication to new freshmen about university expectations, including a required general education core, clear and accurate information regarding planning and registration, and a personal side to a large and complex university
- A Web-based planning and registration system that was easily accessible by all students regardless of time or place and that provided accurate and integrated information about planning and registration
- Academic advisement and transition needs of entering freshmen

Data was collected from surveys (students and parents), focus groups (staff and students), and database information (students' data, Web planning, and registration data). Following are the findings, in brief. Detailed responses and analysis are given in other sections of this chapter.

- *Clear communication.* Students generally felt that personalized advising efforts and the written and Web-based materials were helpful. Nevertheless, half of the students reported moderate or little understanding of academic planning.
- *Accessibility of Web-based planning and registration system.* The system was accessible. For the first time, students were able to plan and register, following a step-by-step procedure based on university expectations and requirements; take math and language placement exams; and reserve textbooks online.
- *Degree of usefulness of the planning and registration initiative in terms of advisement and transition needs of entering freshmen.* The system was effective. That is, some students began to think about planning for college beyond the first semesters. However, no unambiguous answer can be given because university personnel and students do not understand key terms, e.g., "transition," "academic planning," "higher expectations," and "advisement," in the same way. Still, for the first time, university staff made a significant and appreciated effort to reach out to all freshmen students via personalized advising.

In general, the process of planning and registering for classes at BYU is complex, perhaps more complex than is commonly understood. Decisions about majors, among other substantive choices, contribute to the complexity of the process. The data indicate that there is some confusion about multiple expectations held for them by the university. It is clear, however, that the influence of parents and siblings on students' academic planning and registration is powerful.

Compelling Case for Change

Freshmen are a special class of undergraduates. Not only do they have special academic advising needs, but they often find the process more complex than they believe it should be. Because of their lack of experience in higher education, they have difficulty articulating their questions about academic needs and where to find related resources, let alone finding answers as they participate in the university's advising and registration process. To

complicate matters, information is, from time to time, either inaccurate or out of date. Further, there may be a lack of collaborative effort on the campus among academic and registration student services, especially on behalf of entering freshmen (Kramer, Peterson, and Webb 2000).

Focusing on the fact that freshmen students are in a transitional stage suggests the importance of developing a freshman advising and registration model based upon their needs. For example:

- What information is or should be readily available on major courses of study and descriptions?
- How is an academic discipline communicated to new students?
- What assistance and information is needed in clarifying academic goals and relating them to career goals?
- Is a recommended first-year academic schedule provided?
- Are instructions on changing majors matched to requirements of the new major?
- When and where is personalized assistance as well as Web access to information provided?
- Are students effectively connected to general advising resources and specialized information, such as grants, loans, and scholarships?
- How do freshmen gain access to academic advisement programs and other institutional resources and programs, such as new student orientation and honors programs?
- How is information coordinated on the campus to prepare students for entry into an academic discipline, such as explaining college requirements, course contents, terminology, and how to adjust a class schedule?
- Is the academic advising process coordinated and integrated for students to complete initial registration and to make class schedule adjustments effectively while staying on track with college and departmental requirements?

A committee representing records, registration, advisement, and academics was formed and a charge given to improve the procedures for freshman planning and registration. Areas requiring change included the following:

- Establishing seat availability for freshmen students in the general education core, such as writing.
- Increasing fulfillment of general education requirements in the first year.
- Simplifying and integrating academic planning and registration materials.
- Providing 24-7 access to freshman planning and registration tools.
- Personalizing academic advising by arranging with each advisor to contact entering freshmen personally before students arrive on campus.

Student Services Trends	Status
Change/Organizational Management	◉
Student-Centered Services	●
One-Stop Service Centers	●
▪ Redesigned processes	●
▪ Generalists/Specialists	●
▪ Cross-functional teams	⊙
▪ Measurable outcomes	●
Web Portal	⊙
▪ Personalized	◉
▪ Customized	◉
▪ Community oriented	⊙
▪ Process oriented	◉
Service Support Center (telephone/e-mail)	⊛
Customer Relationship Management (CRM)	◉
Document Management	○
Back Office Process Redesign	○
Year Recognized	1996

● *In production*
○ *Implementing*
◉ *Planning*
⊙ *Designing*
⊛ *Not intended*

While the access to and the use of technology is central to the issues discussed in this chapter, ensuring that the human technology nexus occurs is equally important. Both are stressed as a means to bring about freshman success in making an effective transition to college life. Thus, the compelling case for change in freshman planning and registration at BYU calls for a cultural as well as an information technology change on the campus.

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Project Summary

The primary objective of this project was to empower freshmen through electronic means and personal contact so they could define and plan educational goals. This called for an integration of all university freshman planning and registration materials, the Web registration system, and the university's advising process. Quality of materials, their timeliness, student access, and collaboration among student services providers all were critical to the success of this project. In general, principles that guided the work of the project committee can be described in a threefold concept of integration of, collaboration among, and accessibility to freshmen student services.

Guided by these general principles, the components of the freshman advising model and the objectives of the project included the following:

- Establishing a required general education core (e.g., freshman writing and American Heritage) to be completed during the first two semesters of registration. Thus, it became incumbent upon the committee to ensure seat availability. Nearly half of the required course offerings were joined classes, that is, two different required courses linked by time, place, and single registration unit.
- Simplifying and combining information on freshman advising, orientation, registration, and other freshman services into a single mailing. This action reduced the morass of information students typically received through individual mailings from various departments.
- Personalizing academic-advising by arranging with each college's advisement center to contact entering freshmen personally. Contact with students occurred mainly by phone because 75 percent of BYU's incoming freshmen live outside the state. (Note: Regular mail and e-mail were also used to contact students.) The university made long distance calls to students, who, in turn, received an 800 number to call back as needed, especially before their registration time began. The university felt that this component of the freshman advising model would help students feel welcome to the university and would facilitate their planning and registration.
- Providing a comprehensive, systems-integrated, Web-based freshman advising or planning and registration system. The following sections of this chapter describe in detail the features and characteristics of this component. The culminating work of the project team is to bring together in an easily accessed format all components of the model.

A campuswide committee composed of representatives from various student services assisted in developing and implementing the project model. Areas represented on the project team included General Education, Honors, Residential Life, Registration, Bookstore, Academic Advisement, Class Scheduling, Records, and Applied Technology Services.

Central to the project was the development of a Web-based planning and registration system customized to the information needs of incoming freshmen. The committee also focused on simplifying materials, personalizing advisement, and revising class schedule offerings. Changes were made and integrated to support the Web-based freshman planning and registration system. Figures 18.1 through 18.4 show sample Web pages that illustrate planning materials. Because this is the third iteration of the system and based on a comprehensive assessment, the content and format of materials as well as system features have progressively changed.

This three-year project attempted to organize BYU's educational system from the perspective of the entering freshman student. The institution tried to align its expectations with those of its incoming students, but it was not always successful. For example, it asked, "As new students try to plan for their initial semester, prepare for registration, and set realistic academic goals, can the university facilitate those actions through sharing its own expectations?" This led the committee to focus on the information needs of new students, providing an example of a recommended first-year academic schedule and major courses of study and descriptions as well as 24-7 access to customized, step-by-step planning information and other advising resources. In addition, because nearly three-fourths of BYU's entering students are out of state, direct contact with each student by an advisor is integral to this model. Advisors were responsible for determining how and when personal contact was to be made; however, all contacts were made before freshman registration began.

The Freshman Planning and Registration System

The central focus of this project is to encourage and support, through online and related materials, academic

advising and registration of freshmen. Because of space limitations, this chapter presents only selected system features and characteristics in Figures 18.1 through 18.6. The illustrations begin with the welcome page (Figure 18.1), which verifies the entering student's major and registration time. The other figures illustrate the five-step planning process, showing the options available. (Note: To guide the committee's efforts, several areas of information emphasis were considered. For example, as Figure 18.2 illustrates, it was important to connect and simplify first semester registration to a planning process.)

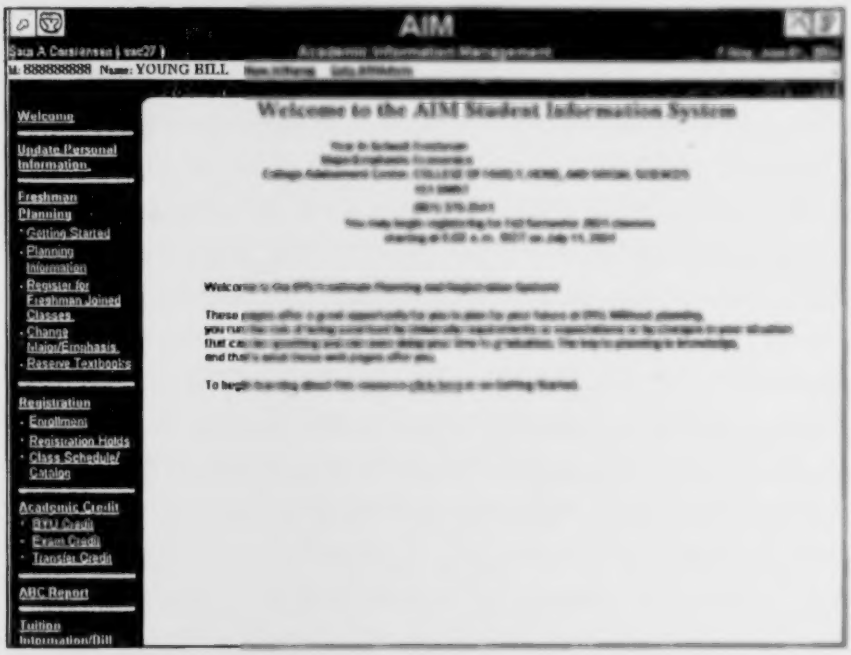

Figure 18.1 Welcome to AIM

In summary, primary features of the freshman planning and registration system include the following:

- A biographical student summary that includes major declared, a menu of key advising resources, and assigned registration time
- Five sequential academic planning steps linked to registration
- Course options for each required area, representing the student's declared major and preparation
- A Web-based option for students to change their major until the first day of class
- Assessment for language and/or math proficiency
- A summary page of the first semester academic plan
- An integrated freshman planning and registration process
- Textbook reservations

Lessons Learned

In general, many positive outcomes were achieved through the current iteration of the Web planning and registration system (including written materials). At the same time, however, the data raise several questions that need to be resolved in order for the planning and registration system to achieve its maximum potential.

Perhaps the fundamental issue is that students (and their parents) are confused by the multiple expectations the university held for them. It is not simply that "expectations for freshmen are unclear." It is, rather, that a number of clear expectations are offered that are not in harmony with one another. Only when the links among expectations, needs, and student actions are understood can staff effectively align resources to offer optimal help to students. Further, university personnel themselves do not always have a shared understanding of the desired outcomes. As a consequence, when the university communicates to students about planning and registration, there may be confusion on the latter's part, giving rise to the sense that BYU is overly complex. The complexity of BYU's registration process is a fact of life. This truth can be grasped by considering the uncertain meaning of terms such as "academic planning," "transition," and others. Although complexity itself does not render the process inappropriate, it does lead to more uncertainty, confusion, and frustration than would be the case if it were less complex.

The principal question asked at the beginning of this chapter (Did the university provide a straightforward,

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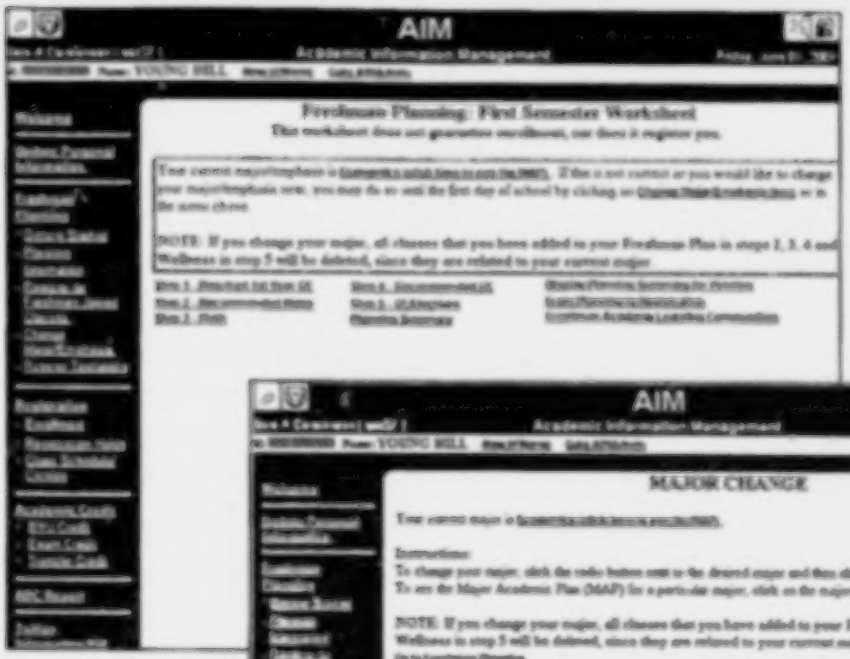

Figure 18.2 First Semester Workshop

Figure 18.3 Overview of Academic Disciplines and Directions for Change of Major

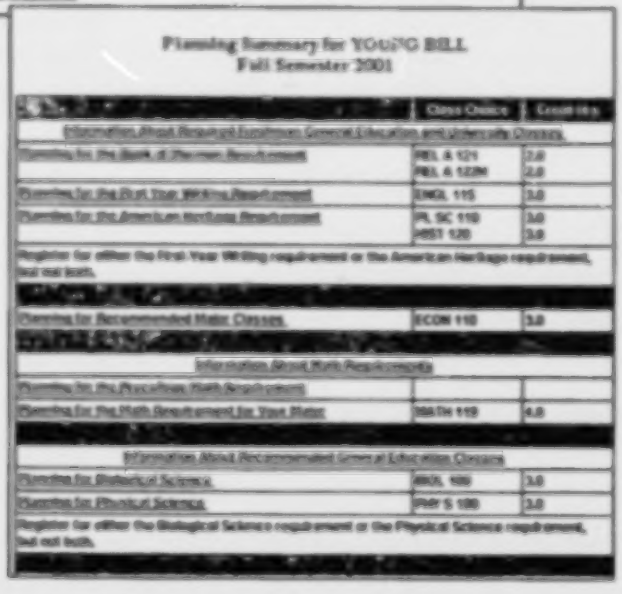

Figure 18.4 Summary of the Five-Step Planning Process

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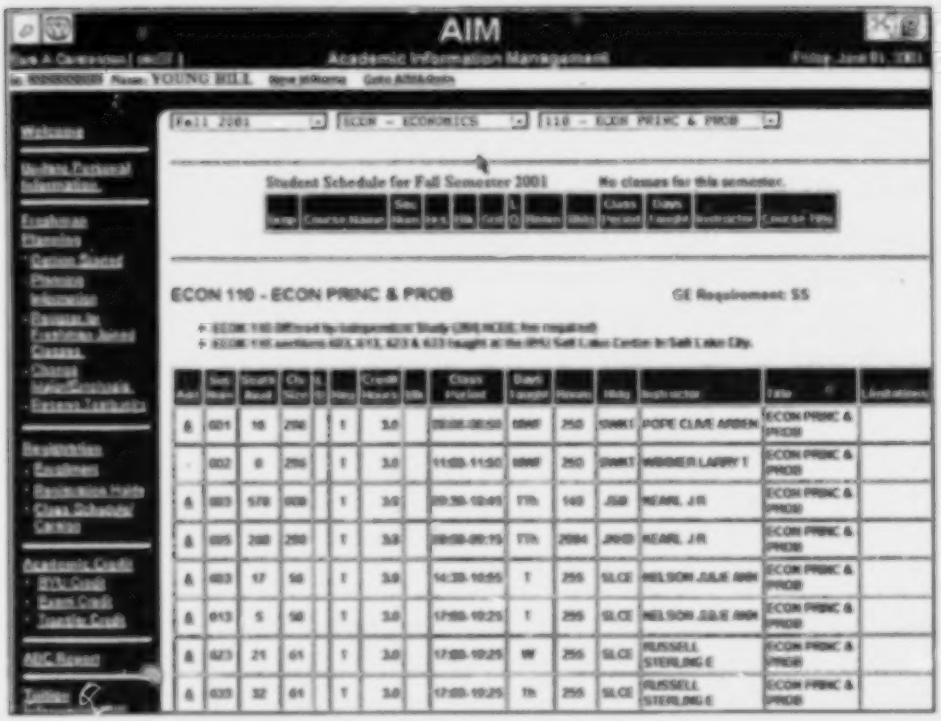
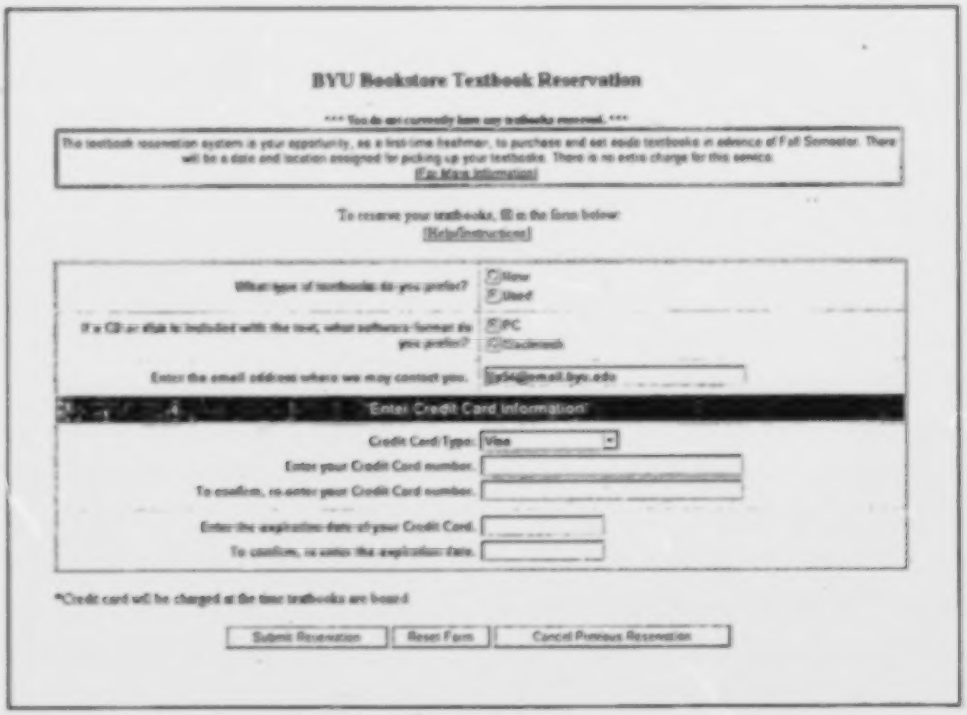


Figure 18.5 Student Registration Web Page

Figure 18.6 BYU's Bookstore Textbook Reservation



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accurate, and integrated planning and registration system that is easily accessible, yet personal, and that addresses the academic advisement and high-school-to-college transition needs of freshmen?) can be answered generally using three other questions as a framework.

- *Did the university—through written materials, personal communication, and the Web planning and registration system—effectively communicate to new freshmen (and their parents) (1) university expectations, including a required general education core; (2) clear and accurate information regarding planning and registration, and (3) that there is a personal side to a larger and complex university?*

  1. University expectations. The planning and registration effort produced increased student interest and effort in participating in first-year core courses. As of November 30, 2000, 78 percent of students who had registered for both fall 2000 and winter 2001 had competed or registered for the first-year required core; 98 percent of returning fall 2000 freshmen had registered for two of the three required core courses. A fact complicating these data is that two official communications from the university about new requirements for registration in the first-year core courses contradicted each other. The result was that students could easily have misunderstood the policy to block third semester registration if they had not registered for the required first-year core.
  2. Clear and accurate information. Most students felt that the personal advisement contacts and the written and Web-based planning and registration materials were accurate and helpful. Fifty-six percent of students surveyed indicated that they had read all of the materials. (Although registration materials were mailed to all entering freshmen, including international students, it is not known how many received them.) After completing fall registration, 55 percent of students reported "none," "very little," or "some" level of understanding of academic planning.
  3. Personal side of the university. Based on tracking data, university representatives (advisors) contacted entering freshmen by telephone. Other contacts were made through personalized written material; e-mail; and letters from the college dean, department chairs, and others. In general, university staff made a significant and appreciated effort to reach out to students. Yet, for various reasons, not all students were contacted. A more comprehensive and systematic effort to contact all entering students is at the center of recommendations for next year.

- *Did the university develop and refine a Web-based planning and registration system that (1) was easily accessible by all students regardless of time or place and (2) provided accurate and integrated information (e.g., Honors, Freshman Academy, Bookstore) about planning and registration?*

  1. Accessibility. Students in the United States and abroad easily accessed the Web planning and registration system. In fact, it was the preferred method of registration. Seventy-one percent of students used the Web registration system exclusively; 15 percent used touch-tone telephone exclusively. In addition, 12 percent of students used a combination of registration methods. Many students also wanted a paper copy of materials.
  2. Accurate and integrated information. Several enhancements were made to the Web registration system for fall 2000. For the first time, students were able to register for Freshman Academy courses online as well as reserve textbooks. Also, students were able to follow a step-by-step procedure to create a plan for registration based on university expectations and requirements. However, students expressed difficulty understanding "joined" or "envelope" classes, among other terms. In addition, not all students took advantage of the planning system available on the Web, either completing all of the steps or doing so systematically.

- *How well did the planning and registration initiative address the academic advisement and transition needs of entering freshmen?*

  This question is not easily answered. An unambiguous answer to the question requires a shared understanding on the part of university

staff of the operative terms "academic advisement needs" and "transition needs." One party, for example, might be satisfied that the latter phrase means simply that entering freshmen are briefed in some form on the "higher expectations" of the university compared with high school. Another party, however, might believe that the phrase also means that knowledge about social, housing, health, financial, and other issues is to be provided.

The best that can be said is that at some level of need description, the system was effective. Some students, for example, reported that as a result of the materials and the Web registration system, they had at least begun to think about planning for college beyond the first semester. Until the university defines advice about planning for students and places it in written materials and on the Web, it will be difficult to "grade" the effectiveness of the initiative.

In addition, the following points were noted:

- The process of planning and registering for classes at BYU continues to be complex.
- Students reported that parents and siblings helped them in planning and registration.
- Decisions about majors carry a host of other substantive choices and, thus, contribute to the complexity of the process.
- The culture of the university with regard to planning and registration shapes, as do all cultures, the behaviors and attitudes of those within its influence. Sometimes the university views the resulting behaviors and attitudes of students as productive; sometimes it views them as unproductive.
- Understanding students' advisement and transition needs without the ability to track individual students over time is difficult.

Conclusions and Recommendations

A graduating senior might understandably believe the last year of study to be the most important, but faculty and academic counselors who spend their professional lives working with university students consider the first year on campus to be the critical one. By far, the greatest number of students who drop out of the university do so as a result of their experience in the first year. Specifically, if freshmen are given precise and consistent instructions, personalized assistance, and accurate information at the beginning of their college experience, the likelihood of throwaway classes and discouragement with the university can be substantially diminished.

This chapter has been about BYU's project to improve first-year academic planning and registration, facilitating a clear transition into higher education by providing freshmen with important tools, resources, and information to plan successfully and register their first semester. It has not been a perfect process. There are some things that we will do differently as we proceed with the next version.

- Begin registration only after advanced placement credit has been posted.
- Continue personalized advisement efforts, beginning with an acceptance letter and accompanying enclosure titled "Important Information for New Students."

Brigham Young University

On October 16, 1875, Brigham Young deeded a little more than one acre of land to the establishment of Brigham Young Academy. The academy's curriculum was strengthened, and enrollment grew steadily from its original 29 students to more than 30,000 currently, becoming one of the largest private universities in the United States. In 1903, its name was officially changed to Brigham Young University. The 646-acre campus in Provo, Utah, is located 45 miles south of Salt Lake City, cradled between the lofty Wasatch Mountain peaks and the placid waters of Utah Lake.

Sponsored by The Church of Jesus Christ of Latter-day Saints, BYU's 10 academic colleges and three professional schools employ more than 1,500 faculty members, who hold degrees from universities throughout the United States and several foreign countries; 78 percent hold doctoral degrees. A BYU education should be (1) spiritually strengthening, (2) intellectually enlarging, (3) character building, and (4) leading to lifelong learning and service. Building on a broad arts and sciences general education, each semester students from all 50 states and more than 100 foreign countries receive instruction in more than 300 graduate and undergraduate programs.

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- Consider ways to involve summer students, as well as winter and spring students, in the planning and registration process.
- Improve preassessment efforts by sending feedback of results to students, departments, and faculty.
- Continue efforts to teach entering freshmen that desired classes might be unavailable—what the consequences of that situation are and the best ways to prepare for it.
- Simplify the "Freshman Resource for Planning and Registration" packet; include information to parents as well as to spring, summer, and winter term/semester students.
- Make the effort to come to at least general agreement about the meaning of certain semi-technical terms used frequently in discussions across campus, such as "academic plan," "transition," "major declaration," or even "freshman." General agreement refers to university staff and administrators as well as students and parents. This recommendation contemplates both stakeholder discussions for internal clarification as well as attention to clarity of communication with students.
- Such discussions among university staff and administration would lead to consideration of the idea of "templates" as they have been called at BYU. The term refers to several sets of classes for entering freshmen that, by agreement among colleges and departments, satisfy various general education and major requirements. With "templates," the number of class options available to entering freshmen at registration would be reduced.
- In general, consider simplifying BYU's approach to planning and registration for all freshmen, regardless of term or semester of matriculation. That is, offer fewer options, provide more intelligent guidance prior to the registration period, and take diagnostic efforts seriously based on an agreed-upon set of expectations for entering freshmen. The need for more or less elaborate pre-registration planning varies directly with the number of options, rules, and requirements established by the university.
- Before freshman registration begins, make a more concerted effort to contact via the telephone every new entering student to determine whether he or she (1) received the Freshman Resource and Planning Packet; (2) understands first semester academic planning, particularly the five-step process, which is outlined in the materials as well as on BYU's Freshman Web Page; and (3) needs help during the assigned registration period.

These recommendations focus on improving the freshman planning and registration system. It is BYU's intent to systematize, through an ongoing research plan, improvement of the planning and registration initiatives. BYU will consider the implications of certain "confusion points" that puzzled students and/or parents and will seek more campus agreement about the meaning of key phrases, such as "transition from high school to college," "academic plan," and so on. It will also investigate the possibility of reducing the complexity of the planning and registration processes.

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19

University of Texas at Austin

Transforming Online Services into a Web Portal

Dana Cook, Shan W. Evans, and V. Shelby Stanfield

Vision

The State of Texas is committed to eliminating barriers to higher education. However, before such obstacles can be eliminated, they must be identified. The challenge is to identify problems from a student's perspective instead of focusing on what we view as administrative or operational problems. In the forefront of this statewide effort, one underlying strategy to eliminate these barriers at The University of Texas at Austin is to use technology, coupled with reengineered processes and procedures, to offer Web-based student services. By streamlining the means for students to handle administrative tasks (such as applying for admission, registering for classes, and updating addresses), they will have more time to focus on their academic goals. One example of UT Austin's commitment to this philosophy is UT Direct (see *utdirect.utexas.edu*).

UT Direct (see Figure 19.1) is a single Internet-based point of contact for university core constituents, including faculty, staff, students, prospective students, and alumni in all stages of affiliation with UT (including academics, business interactions, entertainment/recreation, and development activities). UT Direct is the gateway to electronic services and the foundation of each person's individual electronic relationship with the university. It has several distinguishing features. It is constituent-centered, providing customized Internet communications. It produces high levels of effectiveness, efficiency, and satisfaction by organizing and offering online services from the constituent's, rather than the university's, perspective. And it facilitates the building of communities and trust. The main focus of phase one of the project was the release of student services. We will discuss that focus throughout this chapter.

Delivering the vision. The implementation of phase one of UT Direct has been a tremendous success, as illustrated by the number of users and hits to the system (see Project Statistics below). The high degree of customization and personalization that UT Direct affords its users exemplifies the visions of mass customization and a market of one.

***Dana Cook**, as a senior systems analyst at UT Austin, has managed major projects such as UT Direct; campuswide identification, authentication, and security systems; and the infrastructure components of the administrative financial applications. Cook received a bachelor degree from UT Austin and an MBA from St. Edward's University.*

***Shan W. Evans**, assistant director for Administrative Computing Services, Information Technology Services, at UT Austin, oversees various e-university initiatives for the department. These include project management of UT Direct and responsibility for the development and enhancement of the university's shopping cart, credit card processing, and mail and calendaring systems.*

***V. Shelby Stanfield**, director of Student Information Systems at The University of Texas at Austin, oversees the information technology needs for the Division of Students Affairs. He serves as vice president of information technology for the Southern Association of Collegiate Registrars and Admission Officers and chairs the Technology Committee of the Texas Association of Collegiate Registrars and Admission Officers.*

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During a user's first visit, UT Direct customizes the user's experience by determining in which of 11 categories that individual belongs: prospective student, admitted undergraduate, first year undergraduate, continuing undergraduate, graduating senior, graduate school applicant, admitted graduate student, continuing graduate student, faculty, staff, and guest. It then creates a default home page and set of navigation bar options. UT Direct enables the university to reach out to prospective students using a customized electronic vehicle. New roles are being created as our constituents become more defined. UT's provost has also suggested UT Direct as a possible tool for faculty recruitment. International student and alumni roles are currently being developed as additional categories for UT Direct.

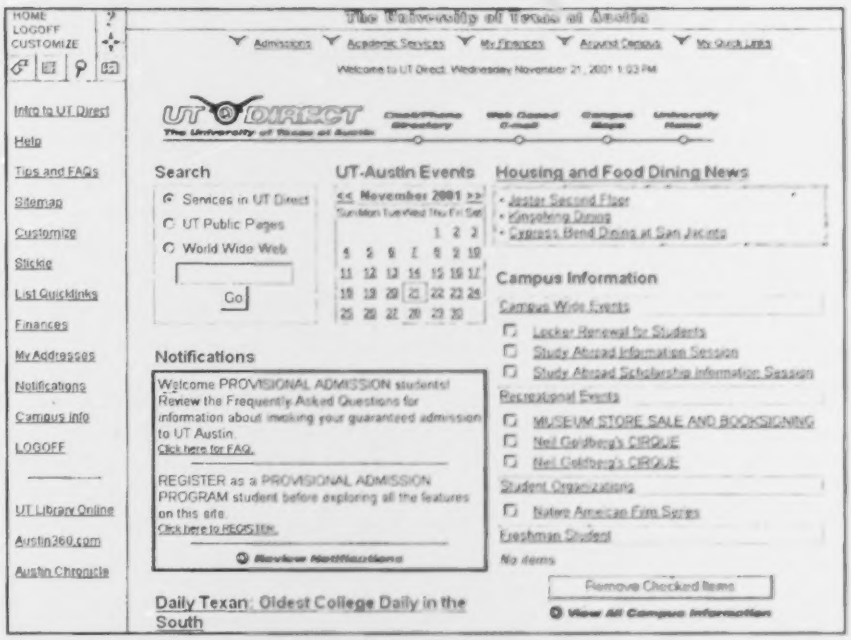

Figure 19.1 A Page from the UT Direct Web site

UT Direct also personalizes a user's experience by allowing him or her to select an alternative interface option (see Accessibility Issues below), which happens when the user visits UT Direct for the first time.

For UT Direct to realize the vision of being the foundation of a user's personal electronic relationship with the university, it is essential that each individual be able to personalize UT Direct as much as possible. Again, the goal is to make UT Direct the individual's personal Web portal. This personalization is accomplished through a vast array of options each user has within UT Direct. Through the Customize link in the navigation bar, users may choose the following characteristics:

- Whether to use the alternative interface option (that is, the view that complies with the Americans with Disabilities Act), which provides greater compatibility with screen readers and software to aid the visually impaired
- Which categories of services they would like on their navigation bar
- Which UT Direct services they would like quick access to via their navigation bar
- Which services and channels they would like on their UT Direct home page (They can choose the column and order in which they appear on their UT Direct home page.)
- How they will receive official notifications—via e-mail *and* the UT Direct home page or just the UT Direct home page
- Which campus information categories they would like to see on their home page (e.g., the student newspaper, recreation and campuswide events, CNN)
- How to manage their Quicklinks (mobile bookmark facility)—adding them, ordering them, and accessing them

One measure of the success of UT Direct is how it compares with similar projects/products at comparable colleges and universities. UT Direct is, by far, the most integrated and fully featured of all the portal implementations we have seen across the nation. No other system reviewed has offered more than 45 online,

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interactive services, accompanied by 30 support services, in its initial release.

Project statistics. Statistics related to UT Direct usage provide another measure of success. From the launch on August 14, 2000, through April 2001, UT Direct has had more than 55,000 unique users log on with their UT electronic identity (EID):

- 49,351 students (including some student employees)
- 9,168 freshmen
- 16,037 other enrolled undergraduates
- 7,529 enrolled graduate students
- 4,561 graduate school applicants
- 18,038 employees (including some student employees)

Building UT Direct was definitely a community effort. Phase one of the project, from design through implementation, consumed approximately 14,745 total staff hours. And 124 people from more than 20 departments and colleges, varying in participation from 5 percent to full time, helped make UT Direct a reality and a success. No additional IT staff was added for phase one. Administrative and technical professionals from many different administrative offices on campus contributed to the design, content, and services released in phase one. Figure 19.2 shows a breakdown of hours by department.

Almost half of the total hours were spent setting up the infrastructure that runs UT Direct. Such an infrastructure component includes the Web frame set, cascading style sheets, navigation bar, search features, notification and announcements systems, and customization features such as Quicklinks.

Department	Number of Hours
Administrative Computing Services–Infrastructure	7,400
Accounting	325
Registrar and Admissions	3,000
Measurement and Evaluation	500
General Libraries	130
Academic Computing–Course Web Sites	2,800
Student Financial Services	450
Housing and Food Service	140

Figure 19.2 Number of Hours Each Department Contributed to Phase One Development

Measures of the success of phase one have been the number and positive quality of the comments received by our UT Direct comments mail list. These are comments from users aboutT the home page, navigation, or any other infrastructure service as well as general comments.

Project history. The university's e-business task force first envisioned UT Direct in October 1999. This task force consisted of directors of the university's information technology organizations and members their management groups. UT Direct was consistent with the president's goals as outlined in his 1999 State of the University Address. One of those goals committed to provide a strong focus on quality. He also asked for university departments "to calibrate against the best, program by program. To imagine what would allow us to become better than today's best in the world that will exist a decade from now."

UT Direct required the building of an e-university organizational structure designed to support it, and initiatives like it, into the future. In so doing, the principles of an e-university can flourish. The organizational structure took the form of the e-University Executive Leadership Team, which was established in November 1999 and is made up of the president, the directors of Academic and Administrative Computing, the provost, and many of the vice presidents. This is the group to which e-university project initiatives are presented and in which executive decisions are made. In May 2000, an e-university steering committee was formed to oversee and guide e-university initiatives.

Phase One

In February 2000, Administrative Computing Services promised the Executive Leadership Team 24 fully integrated services and eight affiliate services as part of the August release of UT Direct. As of early October 2000, there were 74 total services. UT Direct delivered 40 percent more functionality than was originally planned. This reflects the campuswide excitement that created an atmosphere of involvement and participation in the production of UT Direct's initial release. These services

fell into one or several of the 16 categories shown in Figure 19.3.

Academic Services	Campus Services	Graduation	Research
Admissions	Colleges/Schools	Instruction	Staff Services
Around Campus	Employee Info	Orienting to UT	Training
Benefits	Finances	Personal Info	Welcome to UT

Figure 19.3 Categories of UT Direct Services

Phase one was released in two parts. The first part was the delivery of the core infrastructure upon which all UT Direct services were built. This included such foundational elements as navigation, security, authentication, customization, profiling, official notifications, campus information, channels, search, site maps, and help. The second part was the delivery of the content, or services, in UT Direct. These included centralized address changes, a financial summary, tuition and fees, "where's my check?" credit card payment over the Web (also known as "what I owe"), registration, Web-based e-mail, financial aid, a small number of course Web sites, and housing status information.

One of the original goals of UT Direct was to build a sense of community. Because its design provided role-based customization, we added some fun features, such as the university birthday greeting. On a person's birthday, he or she automatically receives an electronic greeting, which stays available for one week after the birthday. Another such feature is the home page poll, with questions posted twice a week. Results are then displayed in percentage form on the site. Another enhancement for the second release was the automatic notification of new services. Every month, subscribers are automatically notified of a list of the new services that are relevant to them. They may easily add these services to their navigation bar or Quicklinks. They may also see all the new services that are available for that month, even if the services are not currently relevant.

Organization

The scope and scale of UT Direct required not only executive support but also considerable organization and management. The following teams were formed and charged with various aspects of the project.

- *Executive Involvement and Project Management.* As the project began, project management divided in two parts—daily project management and design coordination. The daily project manager was responsible for project oversight, resource allocation, daily activities, supervision, project tracking, and coordination of subgroups. The design coordinator was responsible for guiding and coordinating the overall product design process, serving as part of all subgroups as consultant and designer, coordinating vendor/consultant relations/negotiations, handling external communications with campus constituent groups, coordinating evaluation, making acquisitions and integrating commercial products, and identifying policy issues and seeking resolution. In April 2000, these duties were merged and assigned to one project manager.

  Phase one was a collaborative effort by many university departments, including Administrative Computing Services; the Offices of the Registrar, Admissions, Housing and Food, Student Financial Services, Measurement and Evaluation, General Libraries, Accounting; several colleges; and Academic Computing and Instructional Technology Services. While Administrative Computing Services was responsible for project management and oversight, personnel from each of these departments staffed working groups that made UT Direct a reality. These groups, information technology managers and service developers, the UT Direct Infrastructure Coordinating Group, the UT Direct Infrastructure Development Team, and the Communication and Customer Relations Group guided efforts to bring UT Direct to fruition. (See Figure 19.4 for an organization chart that illustrates the overall organization of the project.)
- *IT Managers and Service Developers.* These groups came from departments all across campus and were committed to placing services in UT Direct for phase one; most met or exceeded that commitment.
- *Infrastructure Coordinating Group.* This group's purpose was to coordinate infrastructure projects and make recommendations on how the UT Direct infrastructure was designed, developed, and

implemented. Furthermore, this team obtained feedback from diverse groups involved in the project, such as infrastructure developers, service developers, information technology managers across campus, and campus departmental management, to make the best recommendations possible to meet the project objectives. This group was made up of Administrative Computing Services senior developers, the UT Direct project manager, the design coordinator, and a representative from Academic Computing.

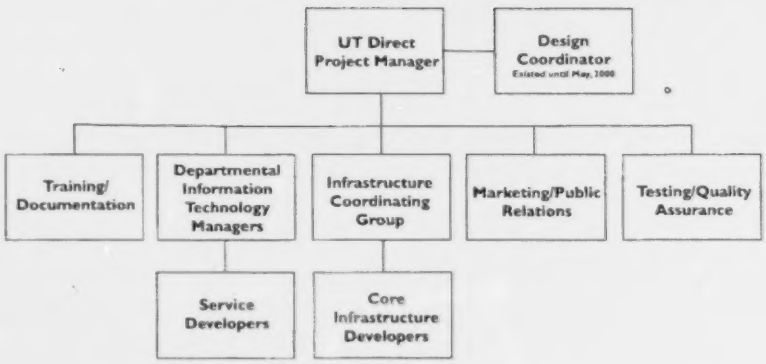

Figure 19.4: UT Direct Phase One Project Organization Chart

- *Infrastructure Development Team.* This team was responsible for providing methodological, design, implementation, and testing services and assistance to all departments and colleges developing services for UT Direct. It was responsible for producing the UT Direct infrastructure and providing a full range of support. The team provided a user interface road map as well as tools, templates, standard interface elements, and other reusable components to make high-quality, user-centered interface design as easy as possible. It also developed style guides, detailed design specification documentation, standard templates, layout schemes, graphical elements, and other resources for developers.
- *Public Relations and Marketing.* This subgroup was charged with introducing UT Direct to the campus. The group developed a creative way to do so by sponsoring a contest in which students were asked to submit a name or a logo representing UT Direct. (See Promotional Campaign and Communication below for details about the types of activities this group coordinated.)
- *Training and Documentation Support.* This team provided both online and hard copy help resources, documentation expertise, and general advice for the help function and general documentation for the developers and users of UT Direct.

Development Principles and Methodology

The methodology used to develop UT Direct is one of iterative prototyping, which allows for multiple prototypes to be developed from the design stage through implementation. Prototypes are developed frequently and are tested throughout the project. This allows the project manager and developers to test design ideas and software development plans before spending time fully developing an idea. A theory can be applied quickly in a prototype and then be test run. This approach was highly effective in the development of UT Direct (and many other UT projects as well).

A number of important factors contributed to the development success of UT Direct. These include the use of collaboration, usability testing and focus groups, an early investigation of commercial products (so that we could adequately evaluate them and make informed buy-versus-build decisions), and use of the foundational infrastructure for authentication and security. Following is a more in-depth discussion of each of these success factors.

Collaboration. First, collaboration took place at all levels of the project, from developers to senior management. Cross-campus collaboration was key because no single individual or group had control over all resources or services in managing the UT Direct project. The president and Executive Leadership Team provided the authority to assure collaboration, which made for a clearly defined direction.

Usability testing and focus groups. Second, the use of focus groups and usability test sessions were of paramount importance to the acceptance and enthusiastic responses we received from users. Many users noted the ease with which UT Direct could be used and the impressive set of features. However, many improvements were made to UT Direct as a result of these sessions, including the following:

- Clarifying terminology
- Adding information about Austin and links to campus maps, a directory, and the UT home page
- Implementing Web-based email
- Implementing the "Stickie" note feature
- Empowering each individual to arrange the position of his or her home page elements

Investigation of commercial products. Third, although the project was on a fast track from the beginning and afforded little time for anything but quick decisions and rapid development, we spent time investigating commercial products so that we could make informed buy-versus-build decisions for many areas of the project. Some areas in which we researched commercial products included the overall infrastructure to run UT Direct, bookmark and customization tools, and search software. In these areas, the tools we reviewed included GoCampus, Oracle Enterprise, Sun iPlanet, Blackboard, Octopus, Backflip, Syncit, Blink, Clip2, NeuroMedia, GoTo.com, AskJeeves, Google, and Olympus.com.

The primary reasons for not selecting a commercial portal infrastructure package were concerns about scalability, integration with our existing infrastructure (e.g., UT EID, which is the university's identification and authentication system) and backend systems, product immaturity or products not yet released in production, and the overall look and feel of the products.

In general, the bookmark/customization/search products were primarily ruled out because of cost, the business model for the product not working in an academic environment, scalability concerns, and technical integration problems.

Authentication and security. Finally, success would not have occurred without a reliable, scalable, proven solution for authentication and security. This takes the form of UT EID. By authenticating the user, UT Direct "knows" who the user is and can customize services and exchange personalized and/or confidential information. Immediately before accessing UT Direct, users must identify themselves and be authenticated by entering their UT EID and password. The UT EID is the campus's pervasive sign-on mechanism and has been in use since 1995. (More than 450,000 of our constituents have a UT EID and password. The UT EID can be extended relatively easily to other Web servers. More information about the UT EID can be found at *dpweb1.dp.utexas.edu/nlogon/eid_suite/FAQ.web.*)

The security of confidential and sensitive data exchanged via UT Direct is addressed through a set of security measures and procedures that are already in place for the Administrative Computer System. These security measures have been evaluated twice via a SAS 70 audit and have been found to meet or exceed high-level industry standards. UT Direct services are delivered via secure socket layer, thus encrypting all transmissions.

Accessibility issues. In the UT Direct project, a very high priority was to address accessibility issues within the infrastructure. In an effort to do that in the most acceptable way, we took the following actions:

- Worked with the accessibility expert in Academic Computing to become knowledgeable about the issues; obtain guidance handling the issues in our software; and get help formulating the wording for the entry screen, customization screens, and help screens
- Purchased, installed, and used the screen reader software, JAWS, to test the infrastructure components
- Designed and developed the alternative interface option choice within UT Direct so that those with screen readers accessing UT Direct would have a positive experience from their first visit

Project Management Methodology

Generally, the UT Direct project was managed using the philosophy of pragmatic idealism. In essence, this philosophy prescribes that one strives for the ideal solution/situation in all cases but always with an eye toward the pragmatic. This allows one to achieve timely, quality successes using or following the ideal path when possible and choosing a good, pragmatic solution when the ideal is not possible. Examples of situations when this was effective include the decision to stop reviewing

potential commercial packages, the flexibility allowed in running the focus group and usability testing, and decisions to delay some functionality until after UT Direct was launched in August 2000.

Another key to the project management of UT Direct was the extent to which collaboration was used. UT Austin's administrative computing environment is decentralized. Various functional business areas such as the Offices of Student Records, Housing, Financial Aid, Accounting, Human Resources, and Budget have their own administrative structures and information technology resources. Administrative systems are built internally within these functional business areas rather than by central information technology staff. Collaboration between these service providers and information technologists was one of the key principles and was absolutely essential to the success of the project. Because information technology resources and service delivery on campus are decentralized, collaboration between these units was the only way the project could succeed. There were many excellent examples of collaboration on the project, including the following:

- Unified address change service, which brought together in a single, comprehensive interface all addresses maintained by UT Austin
- Financial summary service, which brought together in a single, comprehensive interface all financial information owed by and to UT Austin for the person accessing UT Direct
- Integration of logically associated services maintained by separate business units
- Focus groups and usability testing performed jointly by several administrative and academic departments
- Testing and quality assurance done by multiple representatives across campus

Creating an environment in which the service providers and information technology managers focused on institutional initiatives rather than departmental priorities allowed for cross-department collaboration, which was not widely practiced before the UT Direct effort.

An additional technique used in the management of UT Direct was project phasing and milestones. These proved to be very important to the project being released on time because they allowed the developers to focus on one deliverable at a time. Breaking large-scale projects into smaller, discrete deliverables helped the developers by not overwhelming them. Most were able to integrate this project into their normal work schedule.

Promotional campaign and communication. The release of UT Direct required an awareness campaign designed to introduce it to the intended audience. Most of the activities that took place during summer 2000 focused on raising the awareness of UT Direct on campus. Each major constituent group was targeted separately, and different strategies were employed to reach them.

Since phase one was primarily aimed at delivering better quality student services, activities to raise student awareness were the main focus of the campaign. Following is a list of those activities:

- Information tables and banners were placed on the West Mall, UT's public forum.
- UT Direct project team members handed out promotional items, such as T-shirts, key chains, pencils, and coasters, to students.
- Presentations were made to several college freshmen orientation sessions in fall 2000.
- Print advertisements and articles were published in the *Daily Texan*, the student newspaper.
- A speech was given at the fall "Gone to Texas" freshman party.
- Brochures were included in new freshman orientation packages for fall 2000.
- Public service announcements were available on the Web and played before movies shown in the dorm rooms on campus.
- Promotional items were distributed in colleges and departments throughout campus.

In addition to raising student awareness, it was extremely important to raise staff awareness of UT Direct's launch because the portal operates differently from traditional Web services. Generating awareness among staff was accomplished by the following:

- Five large information sessions were held to demonstrate UT Direct and discuss its features, hand out promotional items, and answer questions.
- Training sessions were organized to teach people how to enter campuswide events and create "channels."

- More than 50 presentations were made to various groups across campus about the e-University initiative and, specifically, UT Direct.
- Information tables and banners were placed on the West Mall.
- Promotional items were handed out.
- Print advertisements and articles were published in the *Daily Texan*.
- Banner ads were placed on the Web version of the *Daily Texan*.
- Promotional items were distributed in colleges and departments throughout campus.

Testing and quality assurance. Usability studies have repeatedly stressed the importance of a Web site's look and feel—its appearance and behavior. As a result, designers and developers at the university expended much effort to establish the general look and feel of UT Direct. The purpose of the testing and quality assurance (QA) process is to ensure that services that are integrated into UT Direct complement each other and give the user the feeling of consistency throughout the entire site.

The testing strategy was thorough, relying on several stages. Developers first tested their service internally, using their own checklist and the standard testing checklist produced by the testing/QA team. Testing was conducted in a computer lab, where various combinations of computers, browsers, and connections are available. These combinations allowed developers to observe the possible technical problems that might result from minor incompatibilities between browsers and markup languages or slow data transfer rates from certain Internet connections. Following internal testing, services were submitted for review by an outside team. Because people who are less familiar with the service staffed this stage of testing, it more closely approximated use by students. After this external review, student usability testing began.

Administrative Computing Services continually uses focus groups and usability tests to obtain input from students, faculty, and staff about new services and functions. These methods provide valuable input for new services as well as ideas for streamlining existing services. Ideas for many of the UT Direct features and functions have come directly from these groups.

Student Services Trends	Status
Change/Organizational Management	●
Student-Centered Services	●
One-Stop Service Centers	⊙
▪ Redesigned processes	⊙
▪ Generalists/Specialists	⊙
▪ Cross-functional teams	⊙
▪ Measurable outcomes	⊙
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	●
▪ Process oriented	●
Service Support Center (telephone/e-mail)	●
Customer Relationship Management (CRM)	◎
Document Management	●
Back Office Process Redesign	●
Year Recognized	1999

● *In production*
○ *Implementing*
◎ *Planning*
⊙ *Designing*
◉ *Not intended*

Where We've Been and Where We're Going

In August 2000, 45 services were available with the initial release of UT Direct. Most of these were student oriented. The focus for winter 2000/spring 2001 was to add content related to faculty, staff, and business services as well as additional services for students. More than 30 new services were added in January 2001. In addition to the services that were offered, enhancements to the UT Direct infrastructure and home page were made.

One goal of UT Direct is to make the information relevant to each constituent. The first phase of UT Direct focused on providing internal university information. This included channels for the academic units (colleges and schools within the university), university events, and links to other university services. Now our band is widening. More external channels, such

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as CNN, Dallas-Fort Worth News, Houston News, Salon, SlashDot, Wired News, and International Students and Scholars, have been added to the home page selections for customization. Also, events outside the university have been added. These services will continue to grow as our diverse population demands more access to external Web information.

Focused attention continues to be paid to the UT Direct infrastructure. One future enhancement will include improvements to the mobile bookmark facility, known inside UT Direct as My Quicklinks. This feature will make it more like the bookmarks available in Web browsers.

One service geared toward both faculty and students is the Class Information Pages. This service, released in May 2001, provides class-based information such as faculty name, e-mail, office hours, course description, announcements, class events, class roster feature, textbook information, and grade rosters and includes links to any external Web sites that the faculty member maintains. These pages provide the foundation on which any future class-based content and services—such as online grading, class-based chat and threaded discussion, online quizzes and exams, and assignment distribution and submission—will be published.

A key goal of UT Direct is to provide university constituents with a sense of community. Web-based e-mail has been added. Both chat and threaded discussion will be added in the near future. Additionally, an active personal calendar system for individuals will be included. All of these will be behind the single sign-on with the UT EID.

The university continues to stress the importance of accessibility. And UT Direct continues to upgrade its Web site and services to ensure that accessibility requirements are met. The Infrastructure Team has recently upgraded to the newest version of JAWS and is looking into the Bobby software, which is a program that graphically marks up a Web page with disability access and browser compatibility suggestions. The Bobby software has recently begun to support secure Web sites using secure socket layers. These tools will help with testing the portal to ensure services comply with the Americans with Disabilities Act.

It is important for the UT Direct infrastructure to support various platforms. It will become essential for users to access UT Direct using new technologies—such as the iPAQ and various hand held devices and wireless technologies—as they become available. With this in mind, UT Direct is being examined to see if new tools can be used to provide that support. These tools, including XML, Java, and style sheets, look promising; however, the steps to get our current system to use these will be large. We are analyzing those efforts now as we continue to expand UT Direct.

Lessons Learned

Perfection. First, the goal of creating a product that is "perfect" is always something to strive for. Unfortunately, reality seldom matches our ideal. Each implementation of a project is a prototype in a sense, creating the highest quality product possible given the constraints. The largest constraints on this project were those of time (it was short!); lost information technology staff resources during the development phase; managing a campuswide initiative in a highly decentralized environment; managing cross-departmental information technology teams; and the pressures to maintain current business processes. Although we were striving for an excellent, high-quality product, we were never obsessed with the idea that it be perfect. For example, although membership of the focus groups was not exactly "representative" as a purist defines it, the groups produced solid results in the time frame permitted.

Focus. Second, we learned the importance of focused attention to the information technology infrastructure and the relation it has to the overall project goals. With such a short time frame in which to design, develop, and implement the project, focus was imperative. Having dedicated staff, such as the senior developers of the infrastructure team, assigned 100 percent of the time to this project ensured focus.

Executive sponsors. Third, high-level executive sponsors, the president, the provost, and others, were integral to the acceptance of this project by many departments. As with many universities, UT's decentralized structure presents significant challenges to cross-departmental initiatives. These initiatives rely heavily upon collaboration and, at times, the goodwill of management in various administrative and academic departments. Having the sponsorship of high-level executives who expressed a willingness to step in and solve cross-departmental conflicts—if they were to arise— paved the way for departments to work

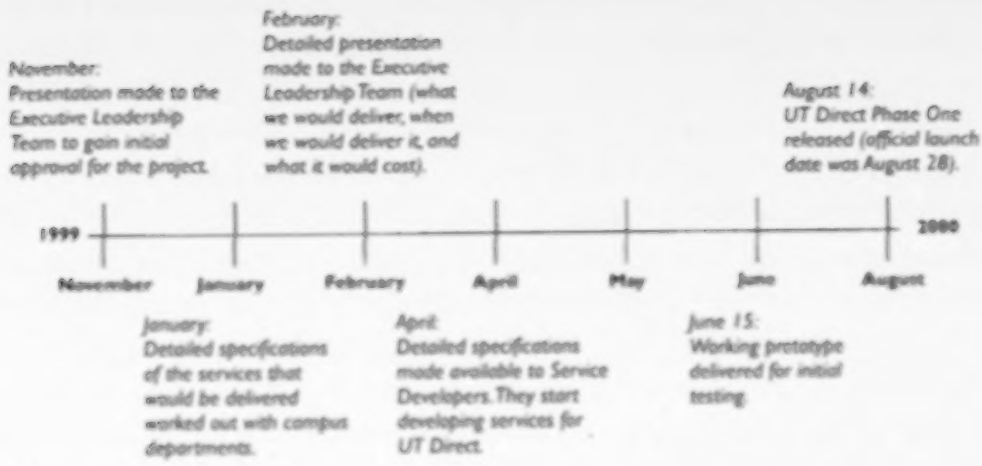
November:
Presentation made to the Executive Leadership Team to gain initial approval for the project.
February:
Detailed presentation made to the Executive Leadership Team (what we would deliver, when we would deliver it, and what it would cost).
August 14:
UT Direct Phase One released (official launch date was August 28).
1999
2000
November
January
February
April
May
June
August
January:
Detailed specifications of the services that would be delivered worked out with campus departments.
April:
Detailed specifications made available to Service Developers. They start developing services for UT Direct.
June 15:
Working prototype delivered for initial testing.

Figure 19.5 Timeline

collaboratively toward this common goal. Obtaining broad input and feedback from many different people and groups on campus was important. Because presentations were made to practically every group on campus, people were well informed and had a chance to present their ideas and give input into the process. This definitely made for a better, more acceptable product.

Communication. Fourth, it is important that the project manager and people in lead positions speak with a unified message when working on a cross-campus project. Resolving miscommunication problems can be very time consuming and is ineffective in moving large-scale projects toward completion.

Quality. Finally, one of the most significant lessons learned was that the quality of the people, ideas, focus, and top leadership directly affects the quality of the end product. Human capital made it possible for this project to be completed on time with almost 40 percent more functionality than originally envisioned. Some of the finest information technology resources were garnered to write the infrastructure of UT Direct.

After UT Direct was implemented in August 2000 (see Figure 19.5), project developers were asked what lessons they had learned. Following are the major points:

- The use of milestone dates throughout the project was key to on-time delivery.
- The creation and use of the Infrastructure Coordinating Group to evaluate and recommend solutions to (largely technical) problems was very valuable. Having senior developers in a key position to help guide the project was important.
- When development was at its peak, the use of computer labs to allow infrastructure developers to

The University of Texas at Austin

The University of Texas at Austin was founded in 1883 on 40 acres of land near the Texas state capitol. As the academic flagship of the UT system's 15 component institutions, the university's reach extends well beyond its 357-acre main campus.

The largest single-campus institution in the nation, it has an annual enrollment of approximately 49,000 students. About 25 percent are enrolled in graduate and professional programs. With more than 10,000 students, its graduate program is among the largest in the nation. It also is among the leaders in the number of master's and doctorate degrees awarded. Students come from every county in Texas, all 50 states, and about 120 foreign countries. With 2,700 faculty members and 17,000 full- and part-time staff members, the university is one of Austin's largest employers.

While UT Austin is a large university, it comprises many smaller learning communities centered on the common goal of expanding knowledge and human understanding. It places a premium on outstanding instruction, and its faculty is distinguished nationally and internationally and includes winners of the Nobel and Pulitzer Prizes.

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program in groups—with all present at the same time—was a huge productivity enhancement.

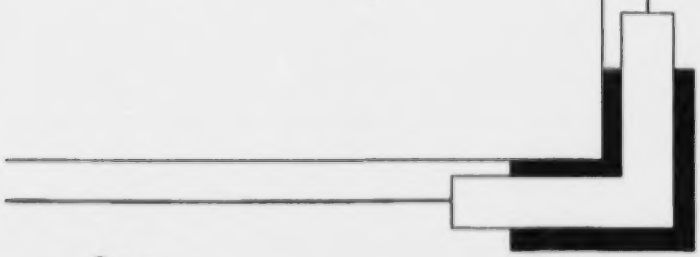
- Earlier involvement in the project by the key senior developers would have been beneficial.
- Developers would have preferred to be involved in setting the implementation date rather than to have the implementation date given to them.
- Users of the infrastructure developer template would have liked a more polished, complete template to be published sooner rather than one that changed often as bugs in browser software were found.

Conclusion

One of the most important results from the UT Direct effort is that decentralized departments at UT are working synergistically to build systems and provide services from the constituent's perspective rather than from the university's organizational structure. This produces systems that are logically organized and arranged. Thus, it is easier for people unfamiliar with the university organizational structure to find and use services to conduct business with the university. A major focus of the initial release was to get cross-departmental, integrated services in UT Direct. Now that this has been achieved, the departments are working to make these services more streamlined and to build upon the foundation that has been laid.

Part 5

Transforming Services into a Web Portal with Intelligence and a Conscience



20

University at Buffalo, the State University of New York

MyUB: A Personalized Service Portal

Robert M. Wright, James Gorman, and Rebecca Bernstein

Overview

In September 1999, the University at Buffalo became one of the first institutions of the Association of American Universities to implement a student computing access program, *iConnect@UB*. By requiring access to computers, we can deliver state-of-the art computing on a number of levels. We provide electronic and multimedia support capabilities for students not only in class, but also in labs, residence halls, the library, and off campus. In addition, the program provides the capability for students to access services virtually (e.g., course management platform, Web registration, Web-based advisement, and student progress toward degree completion tracking).

Central to the provision of these resources was the establishment of our portal—MyUB, the institutional infrastructure that provides students access to a wide array of research resources, instruction, and student services, and acts as an information platform for faculty, students, and staff.

Compelling Case for Change

UB's strong commitment to becoming a click-and-mortar university on both the academic and service side is represented by *iConnect@UB*. However, some significant challenges still must be resolved. Before the *iConnect@UB* initiative, UB's Web presence was made up of silos of niche Web sites: 17 Web servers and more than 250,000 cataloged Web pages plus an enormous volume of Web pages that were not cataloged. This volume of Web pages in no way ensured timely access to quality information. Nearly every site had a different look and feel, navigational scheme, nomenclature, and search capabilities.

With a population of more than 60,000 community members, students could easily get lost and never discover the myriad resources available—the very resources that ensure academic success and build a sense of community. For large universities, retention during the freshman year is extremely challenging. Having access to technology increases communication between faculty and students. In addition, it also increases the proliferation of learner communities, a phenomenon that has been documented as having a direct effect on increased quality of student life and, therefore, on

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Rebecca Bernstein, *the University at Buffalo's director of creative services, spearheaded the creation of UB's Web Team. She has been involved in the university's Web presence since 1994 and has been recognized nationally for her design and electronic media work with more than 80 awards. She also has lectured at national conferences.*

The authors would like to thank the following contributors: Sara Saldi, Hugh Jarvis, and Jana Vourgourakis.

retention. With programs like the Freshman Experience (UB 101), shared-interest housing, and block registration already in place, we had a conduit for disseminating important information to some of our constituents. But we found that students still did not have access to, or knowledge of, all of the information and services available to them.

Because our challenge was to make good on our technology pledge, and to bring the full spectrum of online campus services to all students, we needed a vehicle that had the capacity for centralizing access of online services and reaching every student with meaningful, useful information. This environment was ripe for the development of a portal that organized and selectively linked all the student services and applications available, and provided a one-stop approach to finding information. MyUB was developed with these goals in mind.

Project Summary: Vision and Goals

> *"It has everything that I can possibly think about using online....I used to have all the different sites bookmarked as I found them, and then I decided to just bookmark MyUB."*
>
> *—Unsolicited e-mail feedback from Paul, UB Freshman*

The vision for MyUB was to create a personalized service portal that decreases the distance between students, faculty, and student services, and increases the sense of community. This sense of community was considered in the planning of MyUB and is implicit in its every aspect.

Fundamental to that vision was the notion that the portal should provide fine-grained, time-based delivery of information, which means that each user who views MyUB will see different information based on his or her role at the university. All may see content that is germane to everyone, but, in addition, users will see more (see Figures 20.1 and 20.2). "Fine-grained delivery" means that we can deliver information on one-to-one, one-to-many, and one-to-all levels. Student attributes such as major, minor, class level, and division (undergraduate/graduate) are used to deliver specialized and timely information and services directly to the student.

A number of specific goals established for MyUB relate to improving the quality of campus life for students, faculty and staff:

- Make it easy for students to find the information they need by providing an easy-to-navigate, personalized, and customizable portal.
- Create a portal that would coach students from orientation through graduation, growing and changing with them.
- Build awareness of the many virtual and physical campus services available to students.
- Encourage the use of MyUB as a proactive university communication tool.
- Have a tool that establishes learner communities and, therefore, aids in retention of students.
- Extend the services currently available by providing a secure platform and framework on which to introduce future Web services.
- Demonstrate full support of the *iConnect@UB* initiative.
- Show that UB is committed to a complete information technology infrastructure to support student needs.
- Gain recognition from and establish collaboration with peer institutions.

Translating these goals into reality has led to many specific projects. For example, in the "Program and Career Planning" area, all users see information about effective time management, but freshmen might also see information related to getting their academic program on track and studying effectively. A senior might instead see information about finding a graduate school and future employment. We can even tailor our information specifically to one student—to be viewed by that student alone—in the form of a display of back-end data. For instance, our information can become as individualized as displaying for students their current status for their major. Thus, a given user is only shown what is actually relevant and not distracted by irrelevant or even misleading information. Pages have higher value because of this added relevance and specificity.

We are working toward being able to deliver other fine-grained content, such as alerting individual students to problems *before* they become problems. For example, the system can alert a student who has an outstanding balance that she can't register until the balanced is

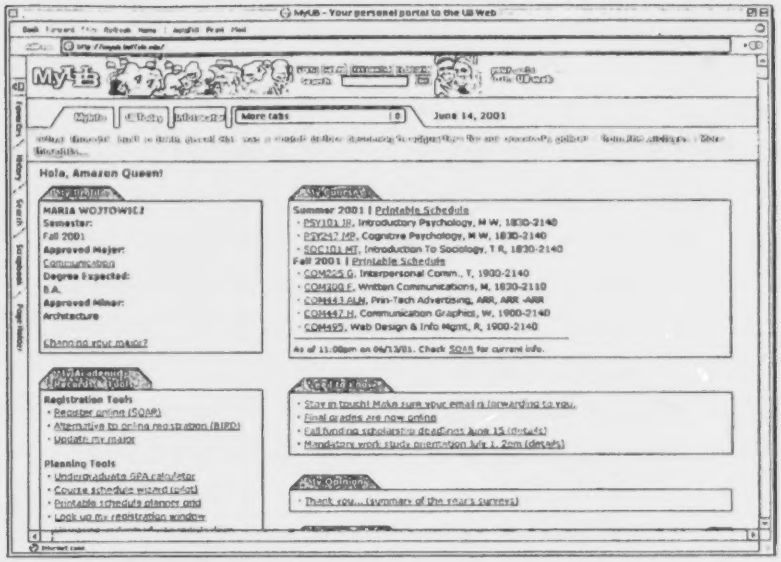
MyUB - Your personal portal to the UB Web
MyUB
More tabs
June 14, 2001
Hola, Amazon Queen!
MARIA WOJTOWICZ
Semester:
Fall 2001
Approved Major:
Communication
Degree Expected:
B.A.
Approved Minor:
Architecture
Changing your major?
Summer 2001 | Printable Schedule
PSY101 JP, Introductory Psychology, M W, 1830-2140
PSY247 MP, Cognitive Psychology, M W, 1830-2140
SOC101 MT, Introduction To Sociology, T R, 1830-2140
Fall 2001 | Printable Schedule
COM225 G, Interpersonal Comm., T, 1900-2140
COM300 F, Written Communications, M, 1830-2110
COM443 ALN, Prin-Tech Advertising, ARR, ARR -ARR
COM447 H, Communication Graphics, W, 1900-2140
COM495, Web Design & Info Mgmt, R, 1900-2140
Registration Tools
Register online (SOAR)
Alternative to online registration (BIRD)
Update my major
Planning Tools
Undergraduate GPA calculator
Course schedule wizard (soon)
Printable schedule planner and
Look up the registration window
Stay in touch! Make sure your email is forwarding to you.
Final grades are now online
Fall funding scholarship deadlines June 15 (details)
Mandatory work-study orientation July 1, 2pm (details)
Check you... (summary of the year's surveys)

Figure 20.1 "My Info" Page

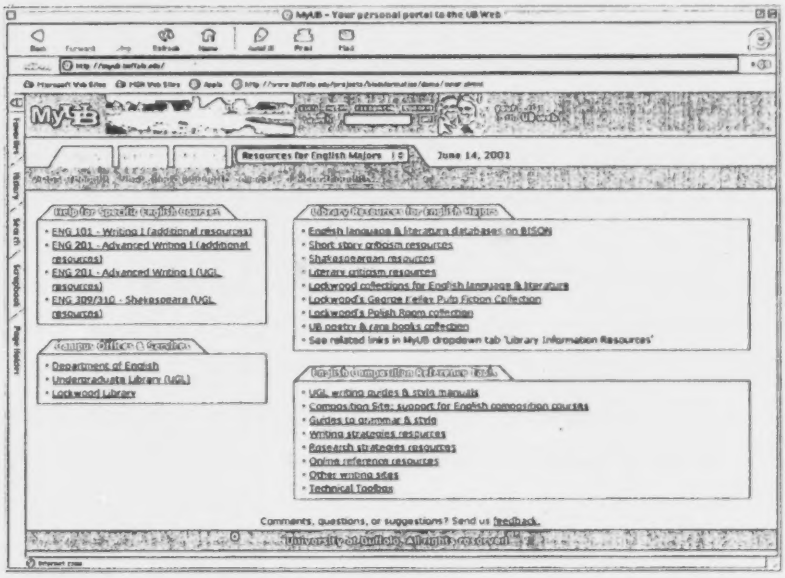
MyUB - Your personal portal to the UB Web
MyUB
Resources for English Majors
June 14, 2001
ENG 101 - Writing I (additional resources)
ENG 201 - Advanced Writing I (additional resources)
ENG 201 - Advanced Writing I (UGL resources)
ENG 309/310 - Shakespeare (UGL resources)
Department of English
Undergraduate Library (UGL)
Lockwood Library
English language & literature databases on BISON
Short story criticism resources
Shakespearean resources
Literary criticism resources
Lockwood collections for English language & literature
Lockwood's George Feiler Pulp Fiction Collection
Lockwood's Polish Room collection
UB poetry & rare books collection
See related links in MyUB dropdown tab 'Library Information Resources'
UGL writing guides & style manuals
Composition Site: support for English composition courses
Guides to grammar & style
Writing strategies resources
Research strategies resources
Online reference resources
Other writing sites
Technical Toolbox
Comments, questions, or suggestions? Send us feedback.

Figure 20.2 Example of a Page Only English Majors See (fine-grained)

eliminated. This would appear only to her upon log-in on her main display page in the "Need to Know" channel. This is the area to which students refer for important institutional communications.

We also developed an application for content management and assigned a "cybrarian" to mine deeper for the right sites—not just the top pages, but the hidden gems that can match the needs of our students. Links that personally and actively reach out to students act as a system of online coaching and mentoring to make sure that students have access to the resources they need when they need them. It complements what the human advisor can provide by bringing the wide resources of UB to the student's fingertips at any time of the day or night. For example, MyUB connects students with self-paced guides to writing better papers and performing academic research in the libraries.

The portal is also used to deliver "virtual thoughts" or proactive information to students about resources and services we think they might find useful at some point during their tenure at UB. For example, information about health and wellness services, student advocates, and counseling periodically comes up in the form of a virtual thought. These virtual thoughts inform students about services in a mentoring way that they can act on immediately or use as reminders when they need help.

The MyUB portal coaches students from orientation through graduation, growing and changing with them. This can be as passive as day-to-day weather conditions or upcoming academic and social events. It can be as active as calculating the grades they'll need to make the dean's list or providing access to information on what they need to meet degree requirements.

MyUB builds awareness of the many virtual and physical campus services available to students. Though many of us are alumni of UB and longtime staff members, even we didn't know about the diversity and magnitude of what is available until we began to research UB's vast services. We wanted students to get

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the deepest, richest experience possible by having fingertip access to resources they might never have discovered without this tool. Information is organized by topic or tasks that make sense to students because they are intuitive. This intuitive structure breaks existing organizational boundaries, allowing students to determine their own hierarchical needs. While our cybrarian works full time just to keep the information fresh, this process is invisible—and invaluable—to our students.

Encouraging proactive university communication, MyUB provides students with a sense of control over their academic and administrative records. Because MyUB provides status information—grades, majors, course schedules—students can "see" their data as administrators do and can proactively determine if it is accurate. An English major who is listed as an engineering major can contact his or her advisor to correct the error. We observed this effect during orientation when students first logged into their accounts and were able to verify the accuracy or inaccuracy of their information. Before classes even started, they were able to clear up misinformation with their advisors. The same is true for grades and schedules, allowing students a sense of control over their records and alleviating the frustration they sometimes feel at large universities of being just a "number."

In all of this, our students are the ones who benefit most: they have the luxury of thinking and learning, rather than chasing down information and resources.

Lessons Learned: Leadership and Strategy

A confluence of several events preceded the development of MyUB. Our campus administration was ready for a paradigm shift involving technology. Not only were administrators willing to allocate funds and resources to build the infrastructure, but our chief information officer was already investing in training that developed communication and team-building skills for the university-wide information technology community. This created the ideal environment. Innovation grows best in an environment open to new ideas. We were fortunate to have top-down support from key administrators, including the chief information officer, the vice provost for educational technology, and the associate vice president for communications, to champion our proposals. This allowed us to sell the idea fairly easily and to begin working on a prototype. To get buy-in from as many campus entities as we could from the start, we started by educating them on the portal concept and demonstrating an early MyUB prototype. Within three months of showing the initial prototype, the project received initial funding and was linked with the student computing access program (*iConnect@UB*) for all entering freshmen.

Build versus buy. We began to design and build prototypes for MyUB in July 1998, before the JA-SIG uPortal product, portal framework products (e.g., Epicentric), e-learning portals (e.g., Blackboard 5), and "free" higher education portals were available. We had a clear business objective and only one way to achieve it—build it in-house.

Clearly this isn't the only option available now. Most software vendors (e.g, enterprise resource planning, course management systems, data warehouses) have "portalized" their products and would like to convince you that their portal should be yours. Several framework products that provide building blocks for a portal (e.g., Epicentric, Plumtree, Oracle, Sun) are now available. The JA-SIG uPortal has matured and has been implemented at a small number of universities. Most application vendors, from PeopleSoft to Blackboard, have "portalized" their products.

We made the only decision available in 1998. If we had to start over again, we would build our own portal but use as many building blocks as possible. Rather than starting from scratch, we would use either a commercial portal framework product or uPortal. We would also investigate commercial content management systems and possibly purchase one rather than develop our own. We continue to stay informed on the development and maturation of these products and see these as viable long-term solutions.

There is no clear "best practice" for the build-versus-buy question because each institution has a unique situation with different legacy systems, integration challenges, technical resources, skill sets, organizational structures, culture, and information infrastructures. However, one practice can help ensure the correct approach is taken. Before even considering the build-versus-buy question, develop a clear campus portal strategy.

Developing a campus portal strategy. For the first two years of the MyUB project, we worked under an

informal campus portal strategy, which the chief information officer supported. In short, the strategy was to build our own portal, focus on the student as the primary constituent, keep the portal free from advertising, and attempt to prevent multiple portals on campus. However, as the issues surrounding enterprise campus portals (both technical and nontechnical) continue to expand in number and complexity, it has become necessary to develop a more formal approach. We recently developed a proposed campus portal strategy that is under review. The following describes the approach we have taken in developing that strategy:

- Develop the strategy with a group that is large enough to attain the appropriate diversity of input and allow you to build wider acceptance later, but small enough to get things done efficiently and effectively. What we're doing at UB is developing the strategy with a small cross-functional group. A much larger group (the Administrative Systems Advisory Board) will review, critique, and eventually approve a strategy.
- Develop a clear assessment of your current situation as it relates to portal development. Address legacy systems, technical resources and skills, organizational structures, information technology infrastructures, integration challenges, and the amount of control desired.
- Develop an assessment of your business need for a portal. This will help gain the support and funding necessary to implement your vision successfully.
- Develop a list of technical principles that will guide your decision making. Establish principles on issues such as security, integration, technical architecture, interface design, content management, personalization, customization, system availability, and the university's attitudes toward outsourcing and vendor selection.
- Develop a list of nontechnical principles that will guide your decision making. Make it clear where the university stands on commercialism in the portal. Address the issue of one portal versus multiple portals. Decide who your primary audience will be. Decide the primary and secondary objectives of the portal. Is it one-stop student services, integration of services, personalization, customization, improved organization of information, community building, pro-active communication, or something else? Decide what is most important, next most important, and so on. The objectives can't all be the most important.
- Learn from the approaches that other universities are taking and from the mistakes they have made.
- Identify your institution's tolerance for the ongoing development and support costs associated with implementing a portal. Portal development requires iterative development. It's impossible to "complete" the entire portal and then roll it out. Therefore, both development and support costs will be ongoing. It's never done.

Other benefits of developing a strategy include the following:

- It identifies subprojects that must be completed before the portal can be developed. For example, many universities have determined that they need to improve their security and directory infrastructures before they can begin to develop their portal.
- It documents a common understanding of the project's objectives and helps to manage expectations from the beginning.
- It helps ensure that the initiative is in line with the university's business objectives.
- It helps prevent silos of portals from developing on campus.
- It helps in developing the long-term support that will be necessary for a successful portal.

Lessons Learned: Building a Team-Based Approach

It's important to realize from the start that no single department has the skill set necessary to develop a successful enterprise portal. On the technical side, we required skills such as Web programming, database design, Web design, interface design, information architecture, system administration, and usability testing. On the nontechnical side, we required people who realized the potential of the portal as a tool for improving student services, enhancing the university image, and providing proactive communication and who possessed deep knowledge of many functional areas within the university.

Culture change. Different skill sets and mind-sets were brought to this project: two different reporting

units (Creative Services and Administrative Computing Services), two different cultures, and two different sets of expertise allowed this project to come together in unexpected ways. Creative Services brought to the table years of experience in communications and marketing; in addition, it had fostered the UB Web team responsible for the university's external communications. Administrative Computing Services brought an expertise in application development and systems analysis as well as the tools for a more formalized approach important for a university-wide infrastructure. The collaboration was successful because an environment was in place in which people valued each other's input to a point where the lines blurred. This fostered team thinking and broke down barriers, hierarchies, cultural differences, and silos that had existed for years, encouraging collaboration among diverse groups. We become a cross-functional team that drew upon necessary skill sets that did not exist in one department alone. We partnered marketing people with technology people as the core team. We made each other stronger and, by working together, added a dimension to the project that we could never get on our own.

Aligning information technology objectives with sound business practices. When you're building a cutting-edge application, you must align your information technology objectives with sound business practices. We made use of the existing, mature Web team and Web application specialists for vision and a good cross section of talent. These two groups working together kept the front end usable and navigable while maintaining back-end efficiency. Because it was a project based on business needs, trust was built, allowing the product to expand beyond its core team. We engaged the university with the MyUB concept and created a large group of key partners, including Communications, Computing & Information Technology, the Office of the Provost, the Libraries, Student Affairs, Records and Registration, Advising, and many more.

Technical education. MyUB was written primarily in Perl, a high-level programming language. It derives from the C programming language and, to a lesser extent, at least a dozen other tools and languages. Perl's process, file, and text manipulation facilities make it particularly well-suited for Web programming and countless other tasks. It was the right tool for the job, but it presented a challenge. Administrative Computing had only one Perl expert. Therefore, we instituted a plan to educate additional staff members through off-campus course offerings and on-the-job experience. The investment proved valuable because having an on-site, departmental expert significantly helped the new Perl programmers learn the language and the required approach to programming with it.

Lessons Learned: Deployment Strategy

UB has taken the approach of providing quality, not quantity, so we opted to roll out MyUB one segment at a time. This meant rolling the project out to a limited audience, getting feedback, and making improvements on existing segments while incorporating improved methods and ideas into new segments. In June 1999, we rolled out to incoming freshmen as the pilot group and integrated MyUB into the freshman orientation experience by providing hands-on exposure. Students were asked to sign on to MyUB, navigate the site, and then register for their fall courses. This strategy proved successful, as we had a high return rate of freshmen to MyUB when the fall semester began.

We chose freshmen as the pilot group because of the opportunity to mesh it with the orientation experience, and because they had no preconceived notions about how or where to go for that help and were most likely to be unaware of what the campus had to offer. Retention of freshmen is also a key university priority. While MyUB is just one of many efforts UB aims toward retaining students in the critical freshman year, retention improved by 3 percent the year of the MyUB pilot.

We further reinforced the product through formal venues such as UB 101, a one-credit-hour course that orients students to campus, campus resources, and advising. Within UB 101, we tracked their perceptions through surveys to get an idea of how successful we were in determining which information was most beneficial to them. In that first year, we had several meetings with advisors to get a general idea of how receptive students were to MyUB.

In June 2000, we rolled out MyUB to all undergraduates, rather than to all students. This allowed us to focus on undergraduate content, working closely with faculty and staff who provide student support services and/or would be providing content for MyUB. This also gave us the ability to assess the demands that

would be placed on the cybrarian and prevented us from getting in over our head with respect to content.

Throughout this project, we remained sensitive to the fact that not all students had MyUB. We chose not to "mass market" MyUB and, as a result, received very little criticism for the limited rollout. This is no longer a concern, as MyUB is now available to all students.

Lessons Learned: Building Support

A project like this is as successful as our ability to get stakeholders to commit to it. We spent a great deal of time building relationships with stakeholders, who take many forms: those who support resources and funding; those who develop and maintain content; and, most important, those who have made MyUB an integral part of their business practices and who are most responsible for promoting usage to our student audience.

Building a stakeholder base. Perhaps the best way to encourage participation and ownership is through regular, solicited critique from stakeholders. This allows them to build ownership by collaborating with us, and it shows them that we value their input. This is done initially with face-to-face "dog and pony" sessions, where we brainstorm with them on where to grow MyUB. This is followed up through stakeholder communications—one-to-one and one-to-many—and a regular listserv updating everyone of statistics, new features, and other information. We then store collected comments and suggestions in a "parking lot," implementing some solutions immediately and reviewing others every six months. In addition, the cybrarian holds regular, ongoing meetings with all stakeholders to assess and reconfigure content modules to conform to the evolving needs or expectations of both stakeholders and users. These sessions confirm the currency and accuracy of our resources, provide opportunities to share usage data, and over the long-term help reinforce content management practices as well as a deeper understanding of the portal itself.

Ensuring that stakeholders have access. Because personalized MyUB accounts are fine-grained rather than generic, everyone has different views. But stakeholders have to be able to see what the students see to guide and advise students properly. We created a guest account at *www.buffalo.edu/aboutmyub* that allows stakeholders and visitors to view MyUB through different eyes. This also allows prospective students to sample MyUB and the myriad offerings UB has.

Educating the campus community. In the early stages of the MyUB project, it was impossible to "show" potential content providers the end product. Not having a "product " made developing buy-in at the department/functional level a challenge. It was difficult to educate the campus community about something they could not see; nor could they imagine pertinent information until it was live. We presented prototype versions, which received enthusiastic reactions but little in the way of active participation. Instead we received passive support. Because it was a pilot program, many stakeholders were not ready to invest their time. However, when MyUB was launched and they were able to actually see how their department's materials were being displayed, they became much more active because they had something to react to and get involved with.

Addressing stakeholders who "think brick." Many stakeholders look at their services and interactions with students from a brick, rather than a click, viewpoint. It is difficult for them to step back and think how best to deliver services and what the students' actual needs are once the brick structures are removed. For best success, stakeholders need to redesign the delivery of services from a student-centered perspective and anticipate the need for services as well as provide a platform for delivery.

Lessons Learned: Continuous Improvement

Throughout our continuous improvement cycle, we've learned many important lessons about developing an enterprise portal.

An enterprise portal is never finished. Working with our stakeholders, doing usability testing and generating team ideas, we identified more than 250 infrastructure enhancements and new applications we hope to develop. The infrastructure enhancements include projects such as extending the personalization and customization capabilities of MyUB, improving usability, developing more powerful search capabilities, and extending capabilities of the content management system. New applications range from integrated Web-based e-mail to better integration between applications, such as the course catalog, the Web student degree audit reports, and Web registration.

The lifecycle of content is continuous. Content must always be attended to through maintenance. Providing content management for a university portal is continuous and time consuming and requires input from a very wide group of stakeholders. We now have more than 200 content stakeholders providing content for MyUB. The information is culled from more than 250,000 cataloged pages and across 17 servers. This represents only a portion of the content available in the .buffalo.edu domain. In keeping with MyUB's "quality not quantity" philosophy, the cybrarian deep mines .buffalo.edu Web content by review and by working with stakeholders to produce a selection of quality content for specific audiences. A good example of this is tuition. A search of the .buffalo.edu domain nets more than 1,000 results for tuition. MyUB recommends the one logical link to content most relevant to the user. For example, an international student, graduate student, and undergraduate student each would receive a link to the tuition page most relevant to them.

The cybrarian, using the MyUB content management system (see Figure 20.3), is responsible for monitoring and maintaining content through the following:

- *Automated link checks.* The cybrarian prepares nightly reports on broken links. Through e-mail reports, the cybrarian targets replacement Web pages to which the MyUB entries can be redirected. In cases where the information has been discontinued, the cybrarian contacts content stakeholders to provide new information or to affirm removing the resource.
- *Manual review.* The cybrarian constantly sifts through data and identifies pages that are not current.
- *Stakeholder review.* Stakeholders proactively notify the cybrarian of changes in page content or location as well as information that is being discontinued.
- *Setting lifecycles (publish and expire, renewal).* For information that has a known life span or time sensitivity, the MyUB content management system is capable of displaying resources for a specified block of time to accommodate user needs (for example, late spring interest in summer jobs) or the natural life cycle of an event or opportunity (such as commencement). We plan to develop automated back-end features that will allow the MyUB content management system to recognize that specific entries may be cyclic in nature and display them regularly (by month, semester, or year) or at least alert the cybrarian to reset the display dates proactively.

We would like to extend our content management system by allowing for controlled distributed content management.

Portals are content driven. We made sure that the portal was sufficiently staffed for maintaining a constant flow of content. We knew we needed an information coordinator (cybrarian) along with an editor to provide guidance and organization. As liaison, our cybrarian communicates with stakeholders, cultivating resources from the various service units, grouping them into sensible bundles, and placing them in effective locations in the portal. This role is two-way. The cybrarian educates the information providers on how the portal can most effectively deliver their informational content to users. In return, providers educate the cybrarian on which users need what services, how, when, and why. This will become even more important as the user base and delivery mechanism (e.g., fine-detail) become more complex. Finally, the cybrarian reports back to the stakeholders on actual user behavior so they can react to

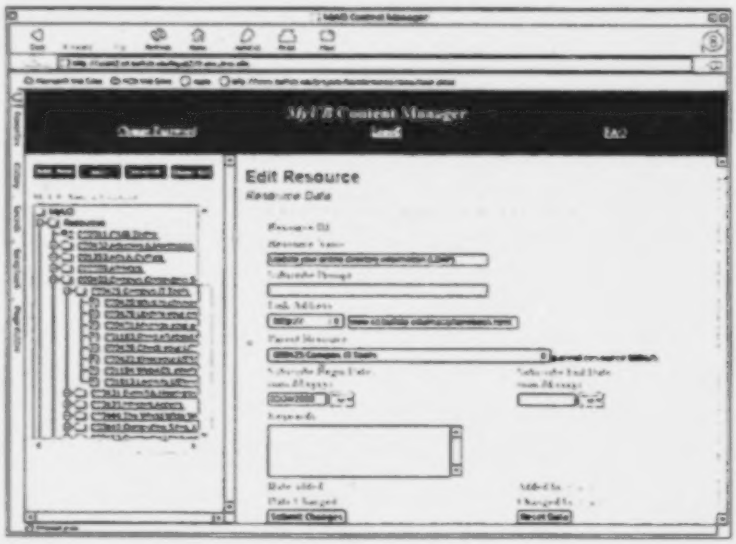

Figure 20.3 MyUB Content Manager

actual user needs (inside and outside the portal), better understand their users for future planning, and provide improved information for the portal. In one example, our cybrarian worked with our campus information technology literacy group to promote UB's new online parking hangtag registration service. Independent confirmation of the importance of this service to students came not only from its click-through but from the number of students proactively searching for it using MyUB's QuickSearch. This analysis affirmed the importance to the stakeholder and ensured the portal was handling information delivery effectively.

In addition, the cybrarian manages the database that contains the informational content of the portal. The database includes the titles and URLs for each link and a series of additional fields: "subtext" (descriptive field used by and displayed in searches), keywords, content life span, and access control (which user groups can view the resource). All of this information is managed in conjunction with stakeholders, user needs (from usability tests, e-mail feedback, and campus media), and user behavior (search keywords and Web server logs) as well as library cataloging methods (such as keyword indexing). With each addition or adjustment to existing content, frequent changes are required in other related or similar entries to provide the most effective search returns and concise page displays.

Listen to the customer. Our stakeholders' assessment of needs, wants, and abilities in the e-world were not always in agreement. While stakeholders might be familiar with what students want in the physical world, their information needs and abilities to fulfill them in the virtual world may differ. One of the ways we listen to the customer is through QuickSearch. All language from MyUB searches is logged, including whether the search was successful (matches found) or unsuccessful (no matches). In addition, a pop-up satisfaction survey randomly appears, allowing users to indicate their satisfaction with the search results. A weekly report is then generated automatically and e-mailed to the content manager. This information is used to adjust database content with new entries, changes in language, and new keywords to accommodate user needs and expectations better. This also identifies holes in content; our cybrarian then works to educate the appropriate stakeholders about student needs.

Student Services Trends	Status
Change/Organizational Management	○
Student-Centered Services	○
One-Stop Service Centers	○
▪ Redesigned processes	○
▪ Generalists/Specialists	○
▪ Cross-functional teams	○
▪ Measurable outcomes	○
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	◘
▪ Process oriented	◘
Service Support Center (telephone/e-mail)	⊙
Customer Relationship Management (CRM)	◘
Document Management	◘
Back Office Process Redesign	⊙
Year Recognized	2001

● *In production*
○ *Implementing*
◘ *Planning*
⊙ *Designing*
◉ *Not intended*

Ongoing usability testing is essential. Usability studies were conducted as part of our continuous improvement and monitoring effort. Their results were extremely useful and eye opening. For example, we immediately discovered that our URL, *MyUB.buffalo.edu*, was not at all intuitive, so we redirected the intuitive URLs to the actual MyUB URL to compensate. We learned that our help and feedback pages were confusing, so we reorganized our thinking and approach to them. We clustered help and feedback resources so this section became a one-stop service channel for help, feedback, questions, FAQs, and finding information. We set up user-defined e-mail routing where end-users select a category for their message and that automatically routes it to the appropriate stakeholder group to answer. We also learned that students favored a relatively small link called an Info-Locator anytime they were asked to find anything. Because that phrase seemed to have

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strong affinity across the board for all our test subjects, we implemented a tab called Info-Locator, which houses tools for finding information at UB, such as searches, directories, and information-base resources. For a complete summary of the findings, see *www.buffalo.edu/aboutmyub/info/usability*.

This study formed part of a Web development course run by MyUB team members. Students surveyed other students and coordinated a series of usability tests on specific aspects and features, including design, navigation, wording, and content. The usability tests were based on Jakob Nielsen's approach to usability. Nielsen recommends watching users as they attempt to perform tasks with the user interface in order to determine which designs work best. The tests were videotaped for future analysis. In addition, student assistants periodically interview small groups of students about design, language, and content issues. Knowledge learned from these studies is immediately used to improve the portal and the applications within.

Choose at least one service application that everyone loves. Doing this will improve your odds of success. Obviously, applications like Web registration, academic progress, and grades help build a lot of traffic to MyUB. But other applications we've implemented—such as the schedule wizard, GPA calculator, graphical schedule, MySchedule-UBlearns (blackboard) integration, news, and weather—help draw in students on a more frequent basis. Web-based e-mail in the portal is the ultimate sticky application, and that project is currently under way at UB.

Lessons Learned: Building Awareness

The challenge to marketing MyUB was developing a plan that respected MyUB's "quality not quantity" philosophy, which allowed access only to a segment of the university. Initially, we rolled out MyUB as a pilot program only to freshmen, followed by all undergraduate students. Because the project was rolled out to a limited audience, we had to be sensitive to the fact that not all students had MyUB. Mass marketing was not an option, so we chose "viral marketing," a strategy building on our practice of integrating MyUB into constituent business practices.

The effect of good viral marketing depends on person-to-person interaction and goes beyond building awareness. It can effect change in user behavior and promote integration of the product into business practices and lifestyle. This type of marketing relies on stakeholder-to-student communications that promote reliance on MyUB to perform tasks as well as student-to-student communications that affirm the usefulness of the product.

Awareness of MyUB grew slowly, yet exponentially, through this word-of-mouth, integrated marketing technique. Viral marketing doesn't work overnight. It is a slow, subtle process. First we encourage stakeholders—such as advising, records and registration, libraries, or student affairs—to use it and take ownership of it by integrating it into their business practices; we then encourage them to talk about it with other potential stakeholders as well as the student population they serve. Through the stakeholders, we were able to integrate MyUB into UB 101, orientation, and key freshman courses. The challenge was the full undergraduate rollout. We were able to reach freshmen (our largest base) through programming that they were most likely participate in (UB 101, admissions, orientation), but we had no centralized way to reach our existing upperclassmen when the full undergraduate rollout occurred. Business integration and viral marketing provided the communication platform for us.

Through viral marketing to the stakeholders, we allowed them to take ownership of the product and market it for us. After each introductory session to a new stakeholder group, we noted spikes in student activity. Many stakeholders came back to us with requests to demonstrate the product to the next level of their organizational structure until we had complete integration. For example, stakeholders from the registrar's office quickly recognized that MyUB's value went beyond including logical links from that office's Web site. We did a dog-and-pony session for the entire frontline staff followed by a brainstorming session on how content in MyUB could support the generalist/specialist direction the staff was moving toward. Ownership is encouraged by asking for, and valuing, input and ideas on how to improve the product. We demonstrate the value of the product by sharing accomplishments and results on our stakeholder listserv and working with stakeholder groups to share data we have gathered that affect their organizations directly.

Now that we have a full undergraduate rollout, we are able to add to our marketing strategy more widespread venues, such as the following:

- We integrated MyUB into the *iConnect@UB* Tech Tools CD, which contains various software packages, documentation, and useful technology and is distributed during orientation.
- MyUB has been promoted in campus newspaper articles and is included in various UB guidebooks.
- When important new applications or features become available, they are introduced to users through a wizard that appears upon their next log-in. They are also e-mailed to all stakeholders through our stakeholder listserv.
- Instructions on how to use MyUB are available at all campus computer labs.
- MyUB is promoted at online registration and at the *iConnect@UB* Web site.
- We printed more than 15,000 MyUB bookmarks at no cost by piggybacking them with existing print runs. These are distributed at events and in other venues to students.

Lessons Learned: Avoiding the Pitfalls

We learned some of our lessons the hard way.

Develop a committee structure for direction setting. Once MyUB was rolled out, we did not have a formal process in place to review and prioritize future enhancements and projects. UB had struggled with formal information technology planning structures in the past and was on hiatus from even having one. MyUB was the first project to come along that underscored the need for this type of central planning body because this project affected nearly everyone on campus in some way.

In 2000, UB implemented a formal information technology planning committee and has received campuswide participation. The key benefit of this committee is that every information technology initiative being put forth in 2001 is in line with the goals and objectives of UB, rather than with departmental efforts that affect only a limited group of people. Without this formal planning, current enterprise information technology initiatives such as our e-Payment initiative would have struggled with the same issues as MyUB.

Old models for identifying stakeholders didn't hold up. We used old models and past experience to determine which stakeholders to work with on new applications within MyUB. For example, we attempted to roll out a new schedule builder wizard and worked closely with the university registrar, the custodian of registration, and transcript information. However, this application now affects a much wider group of stakeholders, such as advisors, orientation staff, and students, who desire more inclusion at the early stages of the project. This oversight underscored the importance of breaking down traditional barriers with an eye toward developing useful strategies and partnerships to provide e-services.

The University at Buffalo

The University at Buffalo is New York's premier public center for graduate and professional education and the State University of New York's largest and most comprehensive university center. UB was founded as a private institution in 1846 and was a regional university until it merged with the state university system in 1962. It now moves in state, national, and international arenas.

UB's College of Arts and Sciences offers undergraduate and graduate study in the arts, humanities, social sciences, and physical sciences. The university also offers degree programs in the schools of architecture and planning, dental medicine, education (graduate programs only), engineering, health-related professions, informatics, law, management, medicine, nursing, pharmacy, and social work. UB enrollment is 24,000: two-thirds undergraduate and one-third graduate and professional.

As a research-intensive university, UB supports and houses a wide array of research institutes, centers, and laboratories. In 2000, UB researchers expended $142 million of such external funds on research projects, making UB the 34th-largest research campus in the nation in total annual expenditure of external funds. Based on recent developmental work and new research partnerships—particularly in biotechnology and information technology—UB expects its research expenditures to rise significantly over the next five years.

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Accomplishments

MyUB is successful only as it succeeds in serving the needs of our audience and the communication needs of institutional stakeholders. Since the inception of MyUB, our stakeholder base has risen from 20 to more than 200. In the 2001 annual user survey, completed by almost one-third of our user base, 87.5 percent of our audience rated MyUB with an overall grade of good or excellent, citing the ease of use and access to valuable information. Almost half visited several times weekly. Our user base is continually growing, with penetration to more than 65 percent of our undergraduate population.

Making a difference in the student experience at UB. From unsolicited comments in our MyUB e-mail feedback such as the following, we find that MyUB has accomplished the goals we set out for it, helping students find the resources they need and getting a sense of community that they can feel a part of: "As a freshman, I wanted to thank you for making answers to my questions accessible. I have been more than satisfied with MyUB," Jessica, UB freshman. "The thing that made my adjustment easier was my computer because MyUB put every possible thing on there," an anonymous UB 101 student.

Developing a strong cross-functional work team. We knew from the start that the completion of a university portal initiative required multiple departments because no single department had all the skills and experience necessary to pull it off. This project was a close marriage between Administrative Computing and Creative Services, two departments that had never worked together before.

Conclusion and Recommendations

Many factors contributed to an atmosphere that demanded an enterprise portal at the University at Buffalo. UB is a large and sometimes impersonal university. Computer access is a requirement. Freshmen arrive at UB more technologically savvy each year. Silos of disparate Web sites exist all around campus. At a large university, the best online customer service is no longer a luxury; it is a necessity. At UB, it was the MyUB project that took online customer service to the next level.

This project has left us with a blueprint and platform for connecting disparate systems. It has developed a strong sense of the importance of Web-based communication on our campus. The Office of Admissions, for example, is now looking to use the MyUB platform to develop a Web applicant tracking and management system. The e-Payment project now under way will be integrated with MyUB.

But much more work remains to be done. We have more than 250 enhancements we'd like to make. We have additional constituents we'd like to serve. We have projects chartered to provide individualized delivery of information, using the students' information and university business rules to proactively notify students about important things before they become problematic. An enterprise portal is never done.

Appendix

Assessment

One of the lessons quickly learned in the development of MyUB was to expect the unexpected. Many of our expectations changed due to the usage patterns of our audience. By continually assessing our product through a variety of different methods, we are able to keep our finger on the pulse of our user base, respond proactively to user-defined needs, make the case for further investments in the growth of MyUB, and continually improve our product.

Benchmarking

Data for benchmarking is accumulated from a suite of resources. Primary benchmarks address quantity, frequency, and other usage patterns, penetration, "stickiness," and speed of adoption. This information is available in our server usage logs. Smaller benchmarks can additionally be built from the following:

- QuickSearch log data (Seventy-eight percent of searches were successful and 21 percent failed.)
- Surveys that record how highly users value the portal (According to the 2001 annual user survey, 97.5 percent of our users found that MyUB contained useful information that was easy to find, and 87.5 percent rated MyUB with an overall grade of good or excellent.)
- Search results (QuickSearch pop-up satisfaction surveys recorded 76 percent satisfaction with the quality of the results.)

All of this information is fed back into the product design and used to help grow the portal, encourage more stakeholders, and draw more funding.

Survey

We run an online survey each spring, during the peak use period when grades are posted. The survey is displayed to students as they log on to MyUB during the survey period. Students may take the survey immediately or click a "skip for now" button to ignore it until their next log-in. Once students complete the survey, they are not presented with the survey again and are prevented from completing multiple survey entries. Surveys include a fixed set of quantifiable questions each year to help us measure our progress, variable questions to address specific content or design issues, and open-ended questions to gather comments and more focused criticism.

The first survey, run in 2000, was designed to determine the frequency of MyUB usage and to gather information about how students use the Web, how familiar they are with portals, and the features they value most about MyUB. The 2001 survey, which was filled out by 3,326 students (more than 30 percent of our user base), contained some of the same questions as the previous year, such as frequency of use. Several additional questions allowed us to measure and improve in the areas that were critical to MyUB's success through user opinions on the effectiveness of the navigation scheme, content visibility/accessibility, and overall satisfaction with the portal. Perceived ease of use, value, and overall satisfaction are key factors to our achieving deep penetration into our user population. One 2001 user wrote, "The site is great. It does what it's supposed to. It provides students with relevant info and easy access to campus stuff."

Usage Statistics and Analysis

Access to statistical analysis tools is through a password-protected master control panel. This provides quick access to key usage data as well as a list of new applications under development. The statistical tools can filter server log data by class, division, or constituent type, and any date range (see Figures 20.4 and 20.5). They include travel frame analysis, which reports use for every MyUB link, application, or content channel (usage frequency and breakdown); the new users tool, which graphs the number of people logging into MyUB for the first time; the resource tracker, which allows us to chart use of any single MyUB link or application over time; the Ten Most Wanted list of the most active resources from the past seven days; and the use of the My Web Links and My E-mail Links applications. These tools allow our cybrarian to monitor and analyze usage patterns, report usage statistics to key stakeholders, and evaluate placement and organization of key content. They also allow us to measure the effect of our viral marketing campaign and orientation and class demos, and to generate "market share" statistics. To respect the privacy of our constituents, we do not gather statistics at the individual user level.

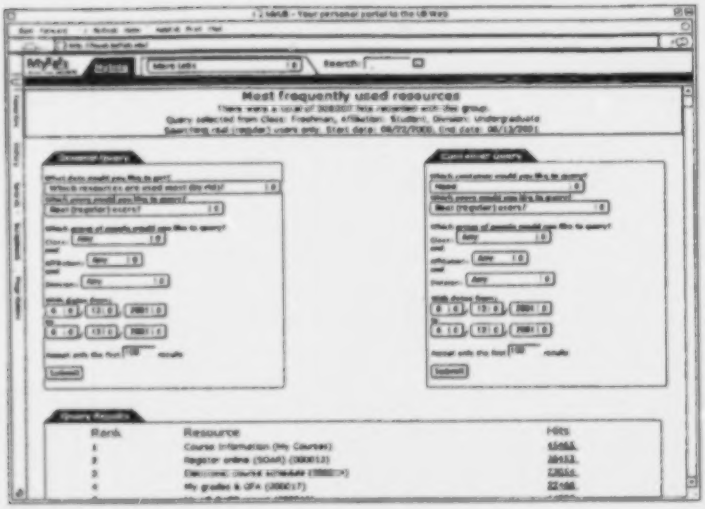

Figure 20.4 Freshman Usage Stats

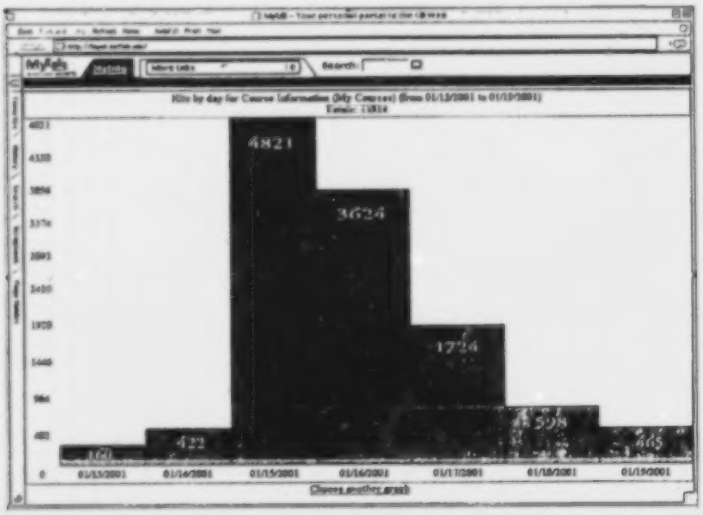

Figure 20.5 Detail of Freshman Usage Stats

Search Engine Analysis

All search queries and returns are logged. As part of the travel frame statistics tool, we can view the most common searches performed in MyUB. They are useful to monitor and even anticipate user needs and respond accordingly. We can also produce word lists and graphs of usage patterns that can be shared with stakeholders.

Because the search is one of the most popular navigational features, this information also measures the impact of marketing (e.g., campus news releases and student demos) and interest in significant events (e.g., fee referendum).

In addition, automated weekly e-mail reports are generated and used by our content editor (see Figure 20.6). These reports allow us to evaluate and improve the effectiveness of our search engine. By responding quickly to just-in-time user needs, we better address those needs as well as improve the overall value of our content. Our response includes adjustments to entry titles and descriptive fields as well as fine-tuning the keyword index. We can promptly cull new content from key stakeholders and over the longer term adjust how specific resources are bundled within the portal channels and pages. Ultimately, we are able to channel users toward specific campus services and resources more effectively, based on our understanding of their actual needs, as well as their importance as understood by our stakeholders.

The report includes three components: good searches (successful), failed searches (no results), and opinion survey ratings. For good and failed searches, the report provides a running total of all search phrases queried by users. Randomized within every 20 searches that are performed, a small pop-up survey is displayed containing one question: "Did you find what you were looking for?" These ratings tell us whether the users actually liked the results they received. This information allows our content editor and stakeholders to respond to spikes in a particular topic, to be knowledgeable about what students need at particular points in time, and to refine existing resource channels and develop new content areas.

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Figure 20.6 Sample Weekly Automated E-mail Report

From:
Sent: Monday, July 02, 2001 4:00 AM
To:
Subject: MyUB Search Results-week ending 07/02/2001

Which queries succeed most often? (Through the week of 07/02/2001)

	Query	Total	New	Good/Bad
1	bird	58	10	6/1
2	e-mail	39	8	1/1
3	financial aid	41	8	2/2
4	bookstore	19	5	2/0
5	flint village	15	5	0/0
6	ceeb code	5	4	0/1
7	parking	17	4	3/1
8	classes	14	4	1/3
9	biology	11	4	0/0
10	calendar	21	4	2/0
11	fafsa	5	3	0/0
12	entrance counseling	3	3	1/0
13	history major	3	3	0/0
14	soar	63	3	6/4
15	online student directory	3	3	0/0
16	e-mail	10	3	1/1
17	meal plans	4	3	0/0
18	political science department	5	3	1/0
19	housing	111	3	2/2
20	library hours	5	2	1/0
21	change password	3	2	1/0
22	political science	6	2	0/0
23	student health center	7	2	0/0
24	exercise programs	2	2	0/0
25	financial	3	2	0/0
26	business	7	2	1/0
27	craft center	2	2	0/0
28	academic probation	11	2	1/1
29	people finder	4	2	0/0
30	undergraduate counseling	2	2	0/0
SUBTOTAL		499	105	32/17

Which queries fail most often? (Through the week of 07/02/2001)

	Query	Total	New
1	215	7	
2	aacsb	7	3
3	dms	4	2
4	lulat	1	1
5	summerclasses	1	1
6	eco181	5	1
7	damage	1	1
8	drafting	2	1
9	bar tending	1	1
10	ceeb	2	1
11	rm107	1	1
12	calendarr	1	1
13	janet mather	3	1
14	biolgoy	1	1
15	bartending	1	1
16	sefa	1	1
17	plaque	1	1
18	mgg300	1	1
19	bartolo	1	1
20	spa 104	1	1
SUBTOTAL		251	29
TOTALS		750	134

For more information, visit the *http://myub.buffalo.edu/myub-cgi/cgiwrap/myub/pw/scripts/myub_search_results.cgi* MyUB Search Results Page

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21

University of California

Empowering Students Through Portfolio Management

J. Michael Thompson, Margaret Heisel, and Lisa Caras

Overview

In 1995, the Regents of the University of California passed SP-1, a resolution prohibiting consideration of race or ethnicity in student admissions. In 1996, a statewide initiative, Proposition 209, banned consideration of race in any state-supported program or organization. These two public policy changes had a very significant impact on recruitment and admission of students in all three segments of California public higher education (the community college system, the California State University system, and the University of California system).

As a result of these changes, the UC Regents began to explore how student diversity might be furthered via alternate means. They established an Outreach Task Force (OTF) and directed it to review existing precollegiate outreach programs intended to promote diversity within the university's student body. These programs identified underrepresented minority and other disadvantaged students and provided support services to enhance their preparation for college. The OTF was charged with making recommendations for how these efforts might be improved and expanded for greater impact upon a larger number of students. As a part of that process, the university engaged Policy Analysis for California Education (PACE) to review the operations and effectiveness of UC outreach programs. PACE's report recommended improvement in the collection and analysis of data supporting the university's precollegiate programs. Data tracking progress of individual student participants in the programs was unreliable and not collected in a way that allowed program managers to spot trends or measure program outcomes or elements in an ongoing way.

This was the milieu in which the university found itself in early 1997. Several organizations and many people within the university began to study ways to improve the data available for the university precollegiate program. At a February 1997 meeting, the university's nine vice chancellors of student affairs considered a proposal to build a single, Web-based database containing information on all of the university's precollegiate programs. They appropriated $30,000 for the creation of the first prototype of such a system, called

J. Michael Thompson, *associate vice chancellor for outreach, admissions, and student academic services at the University of California, Santa Cruz, manages the processes and activities that influence the size and characteristics of the undergraduate student body. He directs institutional efforts in marketing, early academic development, recruiting, admissions, orientation and academic support services, student development, financial aid processing, and registration.*

Margaret Heisel *is executive director for outreach, admissions, and student affairs at UC's Office of the President. She leads a group responsible for UC programs to assist in preparing students for undergraduate admission. She is also responsible for the university's students affairs programs on all nine undergraduate campuses and directs a university outreach office located in Fresno.*

Lisa Caras *is senior vice president of The Igneous Group, Inc. Before co-founding that company, she worked as a technical publications consultant for several technology firms. She has more than 15 years of communications and management expertise and holds an MBA from Santa Clara University and a bachelor's from UC, Santa Cruz.*

UC Gateways. The vice chancellors requested that an operational prototype be developed by mid-May 1997.

The UC Gateways project provides the platform for middle school and high school students to track their progress online toward eligibility for admission. Students build a multidimensional portfolio incorporating their academic work, extracurricular activities, and career and college interests into a single Web-based system. The academic portfolio incorporates the courses and grades that the students have taken or plan to take at the middle or high school level. The system incorporates the official list of all courses that satisfy UC's admissions requirements for each high school. The activities portfolio includes information about a student's participation in UC-sponsored program activities, school-based activities, community service, and work experience. The social capital portfolio allows the students to take a series of online surveys that help them understand their personalities, interests, and learning styles.

One of the distinctive features of UC's organization of the UC Gateways project is that it is a systemwide (multicampus) project led from one of the 10 campuses of the university. The initial development of the Pathways Web-based admission application in 1995 was a joint project involving resources from the Irvine campus and the University of California Office of the President. UC Gateways took this concept one step further: the project leadership resides on the Santa Cruz campus with general oversight from the Office of the President.

From that beginning, UC Gateways grew in multiple dimensions. In *The Trial of Socrates*, I. F. Stone (1989) describes a variety of societal structures. Software development projects typically follow the all-knowing Shepherd structure. In this model, a central group gathers information and, in relative isolation, builds a system, which it provides to users with little opportunity for them to change the system's fundamental elements. Quite early on, the UC Gateways project group chose a different organizing concept. That concept, as described in Stone's book, is one in which the polis—the community—speaks and makes fundamental decisions together. This organizing concept has driven the construction and modification of UC Gateways from the outset.

Because ongoing dialogue with the community is a foundation of the project's organization, UC Gateways has grown in ways unanticipated by its founders. The university has committed to a continuous improvement/development process for this system; we anticipate growth and change in the system in response to the evolving needs and conditions of the programs and ultimately the students it supports. The university made a conscious decision to be responsive to the constantly shifting nature of technological environments, ongoing changes in student habits and expectations, changes in school and university curricula and procedures, and shifts in the ways students gather and use information as they plan their futures.

Using these organizational and technical concepts, UC Gateways has grown into a system that now supports nearly 70,000 students enrolled in a myriad of outreach programs. We anticipate that by 2005, this system will support the educational aspirations of nearly 200,000 students.

The following anecdote from Ellen Levy, a staff advisor of the UC Gateways project, illustrates how UC Gateways is affecting students:

> One young woman, in particular, seemed to be having an especially difficult time. Her inexperience, combined with a slow Internet connection, was trying her patience. I sat down next to her, conscious of the purple and gold beads braided into her hair and the Lakers pom-poms at her feet.
>
> "Hi, I'm Ellen," I said. "Can I help you with this?"
>
> "I don't know," she responded. "I'm not sure I'm doing this right. I don't get to use a computer much."
>
> I could tell she was struggling to understand the relationship between the mouse and the cursor and didn't know exactly how to ask for help.
>
> "Here, let me give you a few tips," I offered. Within minutes she had figured out how to use the scroll bar and reposition the cursor, and had successfully registered as a UC Gateways user. I started to walk away when a friend of hers called from the hallway.
>
> "Come on, Samantha. Let's go," she said. "We're gonna miss the parade celebration."

Samantha looked at the screen, then looked at me, and very quietly asked, "Is it true that doing this will help me get to college?"

Just as quietly, I answered, "Yes."

"Go ahead without me," Samantha yelled at the door. "I got something important to do here. I'll catch up with you later."

I watched her lean back toward the monitor and thought to myself, "The Lakers weren't the only ones celebrating success today."

From the initial investment of $30,000 for the original prototype, UC Gateways has expanded in scope. The initial impetus of this system was to improve the internal university tracking of students in precollegiate programs and to make information about participating students more readily available to admissions offices. However, there were items associated with the academic performance of schools (e.g., average SAT score, number of graduates, percentage of families on AFDC) even in the very first prototype. The original prototype was demonstrated in early May 1997 at a meeting of the outreach professionals of the university and, that same month, to the president and the provost of the UC system at a meeting affiliated with the inauguration of M.R.C. Greenwood as the chancellor of the Santa Cruz campus.

Compelling Case for Change

The dramatic policy changes of SP-1 and Proposition 209 had a significant impact on UC programs to motivate and prepare students from underrepresented groups to attend the university. The university, and ultimately the state legislature, recognized that, with the elimination of affirmative action (which sought to level the playing field among groups via university admission), decisive action was required to change the focus of precollegiate programs. The precollegiate programs shifted from operating on a fundamentally ethnic basis to considering evidence of educational and economic disadvantage. The university was able to refocus its programs on the students attending low-performing schools and students from economically disadvantaged circumstances. Accompanying this shift was an increased emphasis on program outcomes to determine which programs and methods best served the disadvantaged population. As programs grew, this information became increasingly important for planning purposes.

In 1998, the legislature committed $38.5 million to expand current programs and create significant additional programs in the areas of academic development and preparation. With that investment, the state also required a significant increase in the accountability of the university and its programs.

Until this time, there was very little information available about student outcomes in most of UC's precollegiate programs. Reporting was based on information collected via telephone survey and other means. Along with the legislature's interest in the tally of student outcomes, there was a substantial interest in the "what" and the "how" of the programs serving historically underrepresented students.

A second important and related need within the university's student outreach programs was the ability to communicate easily with participants, who were located in schools and communities throughout the state. Staying in frequent and regular contact with students was important for their academic development, as counselors addressed academic and social elements that emerged over time for individuals and alerted students to opportunities and requirements related to university admission, such as standardized test dates and financial aid deadlines. In addition, the programs needed a means to illustrate clearly the connections among various life decisions and academic progress; students needed ways to understand their academic strengths and weaknesses and to see relationships between their curriculum decisions and future career plans.

Project Summary

As it has now developed, UC Gateways (*www.ucgateways.org*) is an Internet-based tool that enables middle school and high school students to chart their progress toward higher education and, at the same time, allows university campuses and schools to use this data to guide and advise students appropriately. In UC Gateways, student records are combined with online learning assessment tools and electronic access to a cadre of university faculty, staff, and students. Underrepresented students interested in preparing for a university education and applying to UC can create a portfolio of achievement that functions as a point of entry to UC. Outreach staff and school personnel can monitor the academic progress of these students and provide the appropriate kinds of

services to help them achieve their goal of UC eligibility and competitive admission.

Student guidance component. When students register in UC Gateways, they begin to create an interactive portfolio that can be updated at any time. At the appropriate time, a student's portfolio can be transferred into an online UC application (Pathways). The portfolio consists of personal information and A-G courses[1] completed and grades earned as well as extracurricular activities and outreach program services in which the student has participated.

Students can learn more about their strengths and weaknesses by completing a series of online learning assessments, the results of which can be stored in the student's portfolio. These assessments can help students narrow their choice of college majors, determine their academic interests, and identify the UC campuses to which they will apply. In addition, students can receive further information about college via the Success Stories feature of UC Gateways, which contains inspiring messages for students written by UC and other college alumni, faculty, and staff. Searchable by high school attended, college graduated from, ethnicity, or college major, Success Stories help students find people like themselves who have achieved their goals. Information about UC, its campuses, and its admissions requirements is available at any time through UC Gateways.

Students are also provided with electronic access to Success Team volunteers, who can provide guidance and help motivate students. By personalizing the path to college in this way, UC Gateways allows students in even the most remote areas of the state to feel connected to and welcomed by the university at any time.

Student tracking component. Outreach staff, school personnel, and university administrators also use UC Gateways to monitor student progress in completing A-G requirements and UC-required exams, assess potential or actual UC eligibility, and design and deliver services that are targeted to students' academic interests, needs, and goals. Each student with a portfolio in UC Gateways is assigned to a team headed by an outreach program professional or a school counselor. This team leader can communicate with students via a UC Gateways Messenger (e-mail) service and can monitor student performance—and determine the appropriate intervention—just by clicking a button. In the near future, UC Gateways will help program staff and school counselors determine the extent to which students have participated in UC outreach activities and can use this information to certify a student's level of program involvement and achievement for admissions purposes. Querying tools allow program managers to conduct an analysis on groups of students and to make program adjustments accordingly.

Needs, Expectations, and Implementation

UC Gateways developed in response to a variety of different users and constituents; the need to satisfy these varied publics created difficulties. Students needed an engaging, easily mastered tool for charting their progress toward university eligibility and admission. They needed a way to see themselves as individuals, measured against the various challenges that college preparation represents. Communication tools needed to be inviting, comprehensive, and instructive.

Program managers needed a tool that would allow them to report outcomes to the state. At the same time, they needed to be able to query the system for help in determining which students were making best use of the program and which program elements seemed to be most attractive to students and related to their success. Managers also needed to be able to communicate with a large number of staff and participants easily and quickly.

The combination of these elements in UC Gateways resulted in a complex system, more costly than either of the constituent's needs taken alone would have required. It also lengthened the time to implement the system and created high expectations on all sides.

A second problem that emerged was unrelated to the quality of the technology of the system but represented a significant hurdle in implementation; that is, UC Gateways was a very significant step upward in terms of the quality and quantity of available data on program progress and outcomes. Although, in theory, more and better quality data is an advantage, it also was a challenge for program managers and staff who were

1 A-G courses and requirements are those that students must complete for admission. The seven categories (A through G) include requirements such as two years of history and social science, four years of English, three years of mathematics, etc.

accustomed to judging their efforts using a less quantitative and more forgiving measure. In addition, some program staff had an investment in systems they had used over time and with which they were very comfortable. The complexity and "newness" of UC Gateways represented an obstacle.

Another set of problems that has emerged as users have begun to tackle UC Gateways is that many schools where students are located have Internet connections that are insufficient for the user volume and other demands that the system makes on school hardware and connections.

Slowly, and step by step, each of these problems is being addressed. Training is now under way with campus staff, and enthusiasm is building as innovators within staff ranks begin to see the potential advantage for their work and for students. Students themselves are fascinated and excited by UC Gateways capacities. And California schools are gaining better computer access on an almost daily basis—a change that will greatly facilitate use of UC Gateways.

Meeting the needs of multiple constituencies. For the university, the biggest challenges of building UC Gateways have been balancing the needs of various constituents and the difficulty of instituting a system that replaces a familiar, albeit inadequate, tool. A contributing factor to these challenges is the fact that the new system is a product not just of local decision making, but also of a statewide office in consort with a c...pus team. Persistence and a good consultation and training program are essential elements for gaining acceptance of a system developed in this structure. Recognition of the great potential of the system for recruitment and planning, for student progress, and for institutional accountability has kept this project on a steady forward course.

Development process. Much of the success of the UC Gateways project can be attributed to the university's selection of a development process that matched the project's structure and goals. The university employed an entrepreneurial approach and rapid development processes more common to the high-tech industry than higher education. The UC Gateways team used a collaborative, user-focused development model and a rapid, phased development process that allowed the team to deliver a functional system in the amount of time normally allocated for planning a project of this scale.

Student Services Trends	Status
Change/Organizational Management	○
Student-Centered Services	○
One-Stop Service Centers	○
▪ Redesigned processes	○
▪ Generalists/Specialists	○
▪ Cross-functional teams	○
▪ Measurable outcomes	○
Web Portal	●
▪ Personalized	●
▪ Customized	●
▪ Community oriented	●
▪ Process oriented	●
Service Support Center (telephone/e-mail)	○
Customer Relationship Management (CRM)	○
Document Management	○
Back Office Process Redesign	○
Year Recognized	2001

● *In production*
○ *Implementing*
◉ *Planning*
⊙ *Designing*
◉ *Not intended*

Project team. Another key factor in the success of the UC Gateways project was the selection of the project team. The university's implementation team consisted of key admissions and outreach administrators who were focused on providing a solution that met the needs of all nine UC undergraduate campuses. Rather than assemble an internal or student-staffed development team, the UC Gateways implementation team selected an outside vendor—The Igneous Group, Inc., of Santa Cruz—as a development partner whose experience in the high-tech industry brought software best practices, rapid development tools, and proven development processes to the project.

The implementation team and the development partner collaborated at each phase of the project: design, development, testing, and deployment. Working from a set of core data requirements, specified by the UC Office of the President, the teams met to discuss the necessary

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feature set to allow outreach program staff and students to manage these data. Equally important, qualitative features were added to support the initiative's charter of encouraging underrepresented students to attend college. The development partner was a key participant in this design phase of the project, assisting in refining the project's vision and assessing the technical feasibility of proposed features.

Including a technical partner in the early stages of project definition allowed UC to avoid expenditures for unnecessary technology. For example, the implementation team was considering providing e-mail services for communication between outreach staff and students as part of the system. Unlimited messages between any users had some undesirable consequences. First, a large volume of mail could potentially overburden the system and detract from its effectiveness. Second, the student users are minors and there were concerns that it would be difficult to monitor or filter their use of e-mail. The development partner suggested that an internal messenger system (with a user interface similar to e-mail) would be relatively easy to build and easy to use. It would also have the advantages of restricting who can send messages to whom, monitoring the content of messages, and measuring the level of communication between different participants. Students can send messages to staff members on their team, staff can send messages to students on their team, and students are prevented from sending messages to each other.

Prioritizing and phasing. At the end of the design phase, all features were prioritized, and the minimum feature set for phase one was established. The goal of this first phase of development was to provide enough functions to allow the outreach programs to operate using data in the new system and stop using their legacy systems. From this set of requirements, the development partner drafted a functional specification and technology plan, which the implementation team reviewed and approved. Development was then initiated.

Feedback and testing. Next, an external beta site was deployed so that the implementation team could review new features as they were developed. At regular project meetings, implementation team members provided feedback on new facilities or features, suggested improvements, and made minor changes that would have been more costly, both in terms of dollars and time, if requested at a later stage in the development process. This close collaboration during development resulted in a "crafted" solution tailored specifically to staff and student needs. In this way, development of the system matched the university's organizing structure of including community input into the project. Such a solution would not have been possible in a more traditional relationship based on a request for proposal. In that process, a vendor is selected through competitive bidding. Development is an arm's-length process in which the university sets the requirements and the vendor works more or less

Project Role	Design	Development	Deployment
University of California Implementation Team	E-business visioning process Approval of plan and budget	Feature review	Deployment
Development Project Manager	E-business visioning process Project plan and budget	Project management	
Information Architects	Information architecture Functional design	Feature review and revision	
Database Architects	Information architecture Functional design		
Graphic Designers	Web site graphic design		
Developers	E-business visioning process Approval of plan and budget	Template engineering Feature engineering	Deployment
Quality Assurance	Test plan	Feature testing Site and regression testing	
Network Engineers		Deployment Plan	Deployment

Figure 21.1 UC Gateways Development Process

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independently (as an "all-knowing Shepherd") to deliver a system based on the vendor's interpretation of those requirements. The university typically has little opportunity to preview and provide feedback on the system before it is delivered as a completed project.

Once the initial UC Gateways feature set was complete (in just over six months), selected outreach programs began using the site. Community involvement was expanded as they requested additional changes and new features. The implementation team considered these requests and approved many of them for development. In addition, lower-priority features from the initial set were added to the development list. As these additional features were developed, they were rolled out, first to the beta site for implementation team approval and then to the live site for outreach program use. These phased rollout approaches allowed the outreach program teams to begin using the site—even as new features were being developed. The project team continues to refine the site using this interactive approach.

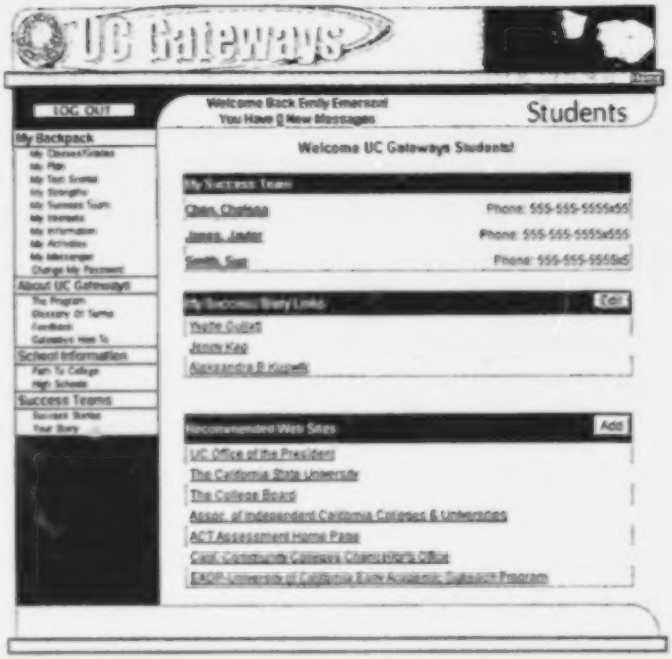

Figure 21.2 Sample Student Home Page

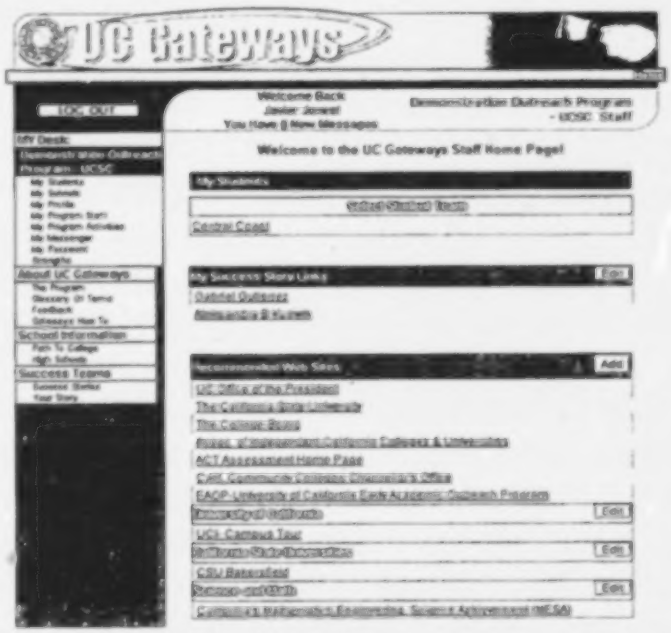

Figure 21.3 Sample Staff Home Page

Iterative development. It is important to note that the collaborative and iterative development process pioneered by the UC Gateways project was not ad hoc or unsystematic. This project employed a proven development process to ensure the quality of the resulting system. For example, before new features are deployed to the external beta site for UC implementation team review, they are fully tested on a self-contained test site within the development partner's internal network. The quality assurance process includes full site regression testing before each major publish to the beta site. Automated regression testing tools help ensure that changes to the site do not adversely affect existing features. Figure 21.1 illustrates The Igneous Group's standard development process as applied to the UC Gateways project.

Focus on users. In addition to rapid development practices, the operational success of the UC Gateways project resulted from the project team's focus on the needs and the experience of its core audience: outreach program staff and students. As part of the design phase, the site identified how users would interact with the site facilities and which users would use

which facilities. The resulting role matrix (showing which roles have access to which features) was used as a basis for developing the site's role-based security system. The facilities presented to each user depend on his or her role in the system. For example, Figure 21.2 shows a sample student home page.

The page is personalized with the student's name and outreach program staff Success Team members. A student can add or remove Success Story Links or Recommended Web Sites. To use other site facilities, the student chooses from options in the navigation menu (which appears on the left of the screen): My Classes/Grades, My Plan, My Test Scores, My Strengths, and so on.

In the staff view, shown in Figure 21.3, a staff user can see his or her student teams and select favorite Success Story Links or Recommended Web Sites to share with students. By drilling down through the team structure, the staff member can select a specific student and view or edit the information available for the student.

Choices in the navigation menu let the staff member view school information, change his or her profile, list other outreach program staff, and so on. Wherever facilities are available to students and staff (such as Success Story Links and Recommended Web Sites), the user interface is left as similar as possible so that the staff users' experience with the site helps them teach students how to use the site.

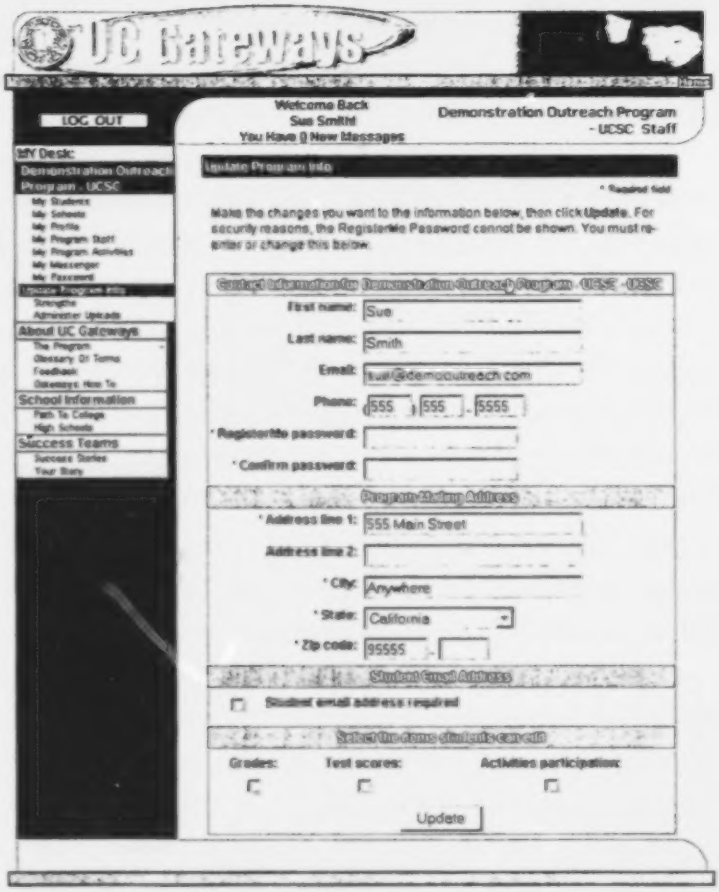

Figure 21.4 Sample Program Customization Page

While the various outreach programs at the nine UC undergraduate campuses share the same data reporting requirements, the directors have discretion as to how the outreach programs are run. To support differences between outreach programs, UC Gateways allows for outreach program customization. For example, an outreach program may choose whether to allow students to enter their own course, grade, and test information or to require staff to enter this information. In addition, outreach programs can set up customized activities and measure student participation. This ability to customize the system allows outreach programs to view the system as their own. The program staff administrator is responsible for configuring program settings and organizing program staff onto teams. Figure 21.4 shows a sample program customization page.

Training. To facilitate transition from legacy systems, the project team developed a complete Staff User's Guide and other training materials, and offered training sessions at different campuses. In addition, The Igneous Group deployed and hosted a third version of the site to be used specifically for training (without affecting live data).

Customization. The level of attention paid to the user experience increases the acceptance of the new system and enhances the social capital provided at the site. Facilities such as searchable success stories of college graduates motivate students to aspire to a university education. Searching by gender, high school,

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community college, UC campus, major, and/or career allows students to read about the college experiences of people like them. The staged search model ensures that a student's search always results in a story. For example, if the student initiates a complex search and there are no matches on high school, community college, or UC campus, the system will display matches on broader measures such as gender or ethnicity.

Likewise, the My Strengths area of the site allows students to complete several self-assessments with results linked directly to career descriptions that match their skills or interests. Students are encouraged to follow recommended links to investigate possible careers more deeply. For example, Figure 21.5 shows the results of a self-assessment and the page that displays when a student follows a link to a recommended career field.

In addition, UC course requirements are fully integrated with the course planning and course transcript areas of the site, implicitly educating students about the requirements for admission and constantly reminding students of those requirements.

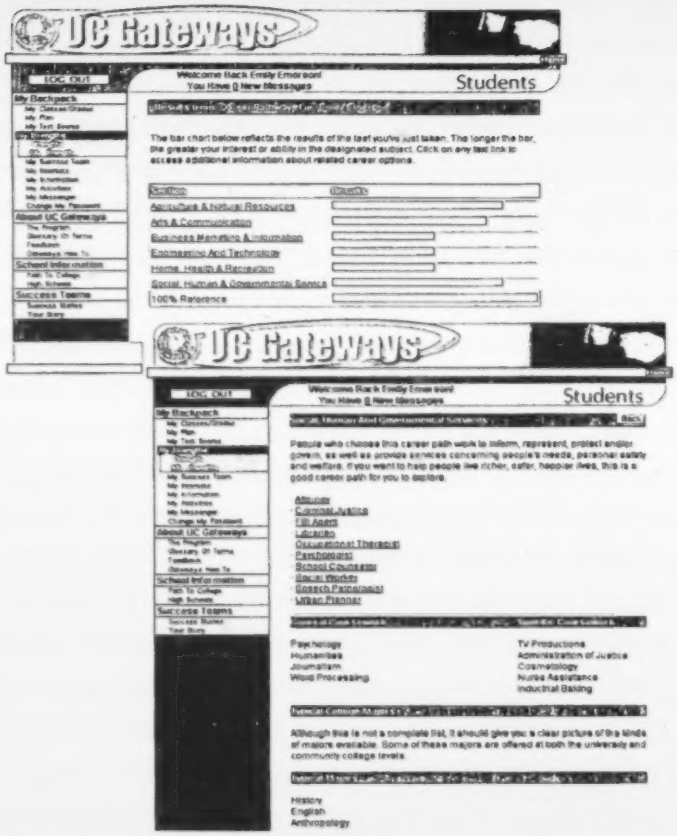

Figure 21.5 Results of a Student Self-Assessment and Link to a Recommended Career Field

Critical Success Factors

Through its commitment to inspiring college aspirations in a broader segment of California's increasingly diverse population, the University of California has positioned itself at the front of the innovation curve in outreach. Through high-touch activities such as campus tours, test preparation assistance, and one-on-one counseling, outreach program staff can persuade underrepresented students that a university education is an attainable goal. UC Gateways adds a high-tech component to the outreach mission that provides a unifying foundation and extends its reach. The Internet allows more students to receive outreach assistance on demand in the time or place that is most convenient for them. For example, if a student has a question about admissions requirements, he or she can ask it immediately using the Gateways Messenger rather than wait for the next admissions workshop. When the student checks back for the answer to the question, he or she might follow a link to a recommended Web site on applying for financial aid or use some other UC Gateways feature that helps in college planning. In this way, the UC Gateways system helps to keep students engaged in the college planning process on a regular basis and not just at seminars or counseling sessions.

Several critical success factors are associated with the UC Gateways project:

- *The right feature set.* The project team worked together to identify operational requirements, means to achieve qualitative goals, and the technical feasibility of proposed features.
- *Responsiveness to a demanding audience.* The project's phased development approach solicits user feedback early in the development process and at multiple stages where incremental changes are less costly. Collaboration with the user community (in this case, the outreach program staff) aids in acceptance of the new system.

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- *Compressed time between conceptualization and implementation.* Collaboration with a development partner and end users allowed the project to move quickly from concept to implementation. Outreach programs are able to use the system "out-of-the-box," with time and development resources remaining for incremental improvements.

Conclusion

We learned many lessons through the development of UC Gateways. We learned that by putting the student at the center of our thinking we built a system that went well beyond the academic tracking that was our initial goal. By talking to students and their families in focus groups and by working with counselors throughout the state, it became clear that we needed to add an entire portfolio of the system, one that was built around the decision-making process for students. We had to assist students in understanding, not just about majors in college but about themselves and the way they learned.

The UC Gateways project taught the university a new approach to rapid application development. Rather than following the traditional approach of defining the requirements of the system in its entirety and then hiring a vendor to build to the specifications, we chose a different path. By using prototype development throughout the project, rather than just at the beginning, the features of the system were tested as they were developed. In fact, as a result of that alignment of development with user needs, the capabilities were significantly expanded. We learned that to be most effective, the university needed to engage in an environment of continuous development.

The current plan for UC Gateways is to continue to expand across the state by providing support for UC precollegiate programs, individual school sites, and other academic development programs. It is our firm belief that bringing specific personal information to students in an environment that allows them to explore their interests, map their progress, and raise their educational horizons through the use of UC Gateways will benefit not only individual students, but also the future of California.

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University of California

Founded in 1868, the University of California is widely respected as the best public university system in the world. Through its 10 campuses; three national laboratories; and hundreds of libraries, museums, community programs, and facilities, the UC system touches the lives of millions of people throughout California, across the nation, and around the globe. UC researchers are pioneers in medicine, computers, biotechnology, and agriculture. Thousands of California jobs, billions of dollars in revenues, and countless everyday household items—from more plentiful fruits and vegetables to new medicine to compact fluorescent bulbs—can be traced back to UC discoveries. Today, the UC system is home to more than 183,000 students and 108,000 faculty and staff.

University of California, Santa Cruz

Since opening its doors in 1965, the University of California, Santa Cruz has held a distinctive position as a collegiate university devoted to excellence in undergraduate teaching and research. The Santa Cruz campus offers a small college setting combined with the considerable resources of a major public university. UC Santa Cruz is dedicated to the belief that an education in the liberal arts and sciences offers the best possible preparation for leading a meaningful life and making a living. UC Santa Cruz, enrolling more than 13,000 students, offers 50 traditional majors in the arts, engineering, humanities, natural sciences, and social sciences. Programs are challenging and rigorous, yet flexible enough to meet special interests and needs. Undergraduates have opportunities to assist faculty with research and often publish papers in academic journals.

Part 6

Moving Forward

22

From Connections to Community

Diana G. Oblinger

Introduction

We often talk about the importance of "connecting" with students. Many of the activities early in the semester focus on creating those connections. But what is the point of those connections? The primary purpose is to bring students into the academic community.

As Richard Light (2001) explains in *Making the Most of College*, one of the most important things a college or university can do for students is to facilitate connections. He states that faculty are prime architects, creating a complex interplay among different parts of campus life.

> Learning in classes can be enhanced, sometimes dramatically, by activities outside of classes. Good advice on course selection can make the difference between a happy young scholar and a frustrated one. Students report that their most powerful memories come from incidents and experiences outside of classes, usually during interactions with fellow students. (p. 211)

Connections are associated with access to the Internet, as well. Connecting to information may be the first impulse, but lasting connections typically result in a community. As Rosabeth Moss Kanter observed, our evolution as a digital society will "require a deeper emphasis on human skills that build meaningful community out of mere connections" (2001, p.12).

Customer Relationship Management (CRM) is not just a technology—it is a new way of looking at relationships. CRM encompasses strategy, process, culture, and technology to enable organizations to optimize relationships and increase value by understanding and meeting customer needs. It provides an opportunity to shift the organization's focus from performing processes to serving customers (Owens 2001). Perhaps most importantly, CRM can represent an important step toward broadening and deepening the sense of community for students.

Capitalizing on connections and creating lasting relationships is the goal of CRM, which has been a focus for business and industry and is becoming a strong theme in government. Higher education is also beginning to use the term. The concept, however, has been embedded in higher education's student services initiatives for many years. The growing awareness of CRM, and the experience gained from student services initiatives, will allow CRM to become a positive force in higher education's future. In fact, CRM represents the convergence of student-centered philosophies, enterprise resource planning (ERP) systems, and Web integration of student services.

Importance of Community

In her book *Evolve!: Succeeding in the Digital Culture of Tomorrow*, Kanter shares numerous insights related to

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Kanter Observation	Student Services Parallel
The community metaphor suggests a different attitude toward customers and users; consumers have changed from passive members of an audience to more active members of a community.	Students are active members of the academic community and have increasingly made their wishes known. They help shape plans and carry them out.
The Web provokes a shift toward more collaborative relationships, ones that resemble open, inclusive communities more than they resemble secretive, hierarchical administrative bureaucracies.	The limitation of "stovepipes" or "silos" is well recognized in student services; many innovations deal with integrating processes, removing barriers, and creating a seamless environment for students.
The Web is a recentralizing force that enhances the need to present a single face to the customer and link separate systems for seamless integration.	There are multiple "touch points" for students, whether they are engaged in the college selection, registration, financial aid, or other processes. Integrating those touch points influences student satisfaction and retention.

Figure 22.1 Parallels Between Kanter's Observations and Student Services

connections and community. Many of these mirror the evolution of student services (see Figure 22.1).

For many years, student services professionals emphasized the importance of communities. That focus can now be augmented with increasingly sophisticated IT tools and processes such as CRM.

Importance of Relationships

Information and connections are important, but the world does not run on information; it is predicated on relationships. However, it is virtually impossible to have a relationship without information about another person or a specific situation. In short, information allows us to have different types of relationships.

An everyday example might illustrate the concept. The relationship you have with your colleagues is different from the relationship you have with someone you sit next to on an airplane. At least part of that difference is the result of the information you have about the person. You have greater depth of information about your professional colleagues. That information allows you to develop a different relationship (one with much greater trust and confidence) than with someone you see once.

There are multiple parallels for colleges and universities. Consider an advisor who sets out to establish a relationship with a new student. It is difficult to establish instant rapport when the information you have about a new advisee is only name, Social Security number, and date of birth. Additional facts, such as intended major, home town, extracurricular activities, and career goals are important pieces of information that help advisors enhance the relationship and provide better advising.

Information is the currency of exchange in campus relationships. Records are exchanged between college applicants and the admissions office. Facts are exchanged in the classroom between faculty and students. Data are exchanged among research teams. Figures are exchanged between the purchasing department and suppliers. The potential quantities of data are staggering. The key is to turn data into actionable information. How the institution manages and turns data into useful information to form relationships and enhance decision making is a process that can yield a better learning environment, which, in turn, gives the institution a competitive advantage (Tuller and Oblinger 1997–98).

In the area of enrollment management, geodemographics served as a precursor to CRM. A few years ago, institutions often would build an applicant pool by purchasing names of high school sophomores and juniors from the College Board. The details associated with a specific student are fairly rich; voluminous data are collected about students who take the Scholastic Aptitude Test (SAT). Schools can purchase names by categories such as zip code, SAT performance level, and race. The goal of geodemographics is to help institutions narrow the list of prospects to those who are most likely to be successful applicants. Before CRM many institutions used geodemographics to cluster applicants into groups based on economics and lifestyle. The process helped institutions target markets in which they were likely to be successful. It also helped institutions reduce lists to more manageable numbers, e.g., to 30,000 names from lists of 100,000 or more. That more targeted approach could translate into thousands of dollars in mailing costs

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alone (Sanoff 1995). Volume of information is not the issue for higher education. The issue is how the information is aggregated and used to solidify relationships. CRM allows institutions to move beyond geodemographics and not only target specific groups, but integrate messages, whether the information is available on the Web, in person, or over the phone.

Enrollment management is just one process that is amenable to CRM. In fact, most college or university activities can be considered as a process of developing, maintaining, or enhancing relationships (see Figure 22.2).

Developing, maintaining, and enhancing relationships is the essence of CRM and a key activity of higher education.

What Is CRM?

Customer relationship management is a customer-centric strategy. Although higher education has multiple "customers," for the purposes of student services, the primary customer is the student. While the principles and technologies of CRM could be applied to internal constituencies (e.g., faculty, staff), this chapter focuses on the student as customer and assumes a student-centered philosophy.

CRM involves understanding customers' needs and behaviors in order to develop stronger relationships. It is how organizations use information to build, maintain, and grow relationships. Even though CRM has many technological components, it is not fundamentally about technology. It is better thought of as a process or a strategy.

As a customer-centric strategy, CRM entails the following:

- Knowing the customer and his or her behaviors in greater detail.
- Getting closer to the customer at every point of contact.
- Building long-term relationships.
- Continuously learning from interactions with customers.
- Proactively engaging the customer, instead of being reactive.
- Maximizing the value of the relationship.

CRM recognizes that customers, whether faculty, students, staff, or external constituencies, are critical to the institution's success. And that success depends on effectively managing relationships with them. However, to manage those relationships correctly, the institution must first know who its customers are—not just as a group, but as individuals.

As mentioned previously, understanding relationships depends on having enough data and actionable information. Part of building a customer-centric strategy is gathering sufficient data about groups to be able to find commonalities and predict behaviors. With sufficient information, interactions and services can be tailored to specific groups. Sometimes this involves incorporating institutional data with demographic figures, lifestyle information and historic trends. This information yields "customer intelligence" that allows organizations to redesign front- and back-end systems to ensure they are providing what the customer really needs.

There are several principles behind CRM:

- All value is ultimately derived from customer value, whether that customer is a student, faculty member, donor, or citizen.
- Acquiring a new customer is five times more costly than holding on to an existing one.

Function	Relationship with	Intended Outcome
Recruitment	Potential students	Enroll at institution and matriculate, then graduate
Student retention	Enrolled students	Retain, matriculate, and graduate
Career services	Graduating students	Link graduates with employers and underclassmen with potential employers and/or internships
Alumni relations	Alumni	Fund raise; make career connections
Public relations	External constituencies, e.g., the legislature	Generate public support, possibly financial support

Figure 22.2 The Many Areas of Higher Education Amenable to CRM

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- The longer you hold on to customers, the more valuable they are.

It is important to note that customer satisfaction is not the same thing as customer loyalty. According to a recent survey from the Meta Group, "Fifty percent of your company's satisfied customers will do business with your competitors. Twenty-five percent of your company's very satisfied customers will do business with your competitors" (SAS Institute 2000c). The reason is that a single positive interaction is not enough to guarantee customer loyalty. Relationships built on multiple interactions cause customers to become more loyal. CRM, and the services the institution provides, can help organizations move beyond customer satisfaction to customer loyalty—an increasing concern as student options proliferate with online programs and as interinstitutional competition increases.

Even in segments where there are few options to get services elsewhere (e.g., government), CRM provides value. CRM is playing an increasingly important role in state and federal government's efforts to provide self-service for citizens and agencies. There is strong interest in one-stop government, for example. Predictions are that CRM will be the largest IT growth area in government within two or three years. For example, federal government spending is expected to grow from an estimated $90 million in 2001 to $250 to $300 million in 2003. Overall, the CRM market is expected to exceed $24 billion by 2003 (Williams 2001). If CRM is being seen as a significant asset for government and business, it merits consideration as a tool for higher education. After all, relationships are of critical importance in higher education, perhaps more so than in any other segment.

Customer relationship management also involves integrating activities across the life cycle of an individual. For higher education, that may entail integrating activities that begin with a youngster attending a junior high school soccer camp and moving to recruitment, admission, matriculation, graduation, and longer-term participation as an alumnus. Whether the relationship begins in grade school, high school, college, or beyond, higher education institutions can maximize the value of these long-term relationships with the tools and processes of CRM.

In some aspects of college and university operations, CRM has been in practice for years without being labeled as such. For example, DePauw University has used geodemography for target marketing to pinpoint prospective students whose economic and lifestyle characteristics are similar to those of its already enrolled undergraduates. Those prospects are then targeted through direct mail.

DePauw also relies on a sophisticated computer system to track all of the students who apply each year. Once students indicate an interest, everything from their test scores to their Internet address is entered in the system. Each time there is contact with a student (often called a "touch point"), that, too, is put into the database. Faculty, coaches, and the admissions staff can tap into the system at any time to check on the status of an applicant. The system allows DePauw to focus more effectively on students who are a high recruiting priority and, at the end of the admissions cycle, to evaluate the process to see what worked and what did not (Glastris 1995).

Another existing practice that can become part of higher education's customer relationship management portfolio is the practice of providing lifetime e-mail addresses to alumni. An increasing number of institutions are offering alumni free, permanent e-mail accounts. The institutional goal is to stay in touch with alumni. Not only does it allow the institution to track students' careers, but it can provide an avenue for soliciting donations, advertising alumni travel programs, and generally keeping alumni involved with the institution. The institution already has a great deal of information about alumni (e.g., major, year of graduation) that it can use to tailor, customize, and personalize those interactions. The goal is to turn those customized experiences into stronger connections with alumni.

To imagine how an institution might use CRM and its information to market to alumni, consider a parallel situation in banking. The bank solicits customers who have the most promising profiles. Their CRM systems also "look" for key events that trigger additional actions. For example, if a customer has significantly larger deposits and requests automatic deposits from an employer, this might signal that the individual has a new position. The system might flag the account so that the next time the individual contacts the bank, regardless of channel (phone, Web, in person), she or he is offered investment advice. If those automatic deposits increase by 10 percent (signaling a promotion, for example), this might trigger the extension of another offer, such as a car loan. The

goal is to ensure that the individual is a loyal, satisfied customer who, when ready to apply for a mortgage, automatically does so with the bank (adapted from Dragoon 2000). The alumni relations/development process of prospecting and then building and sustaining relationships is analogous. CRM provides an excellent tool for taking existing positive relationships to the next level.

Higher education institutions want to have long relationships with students. Part of this desire relates to fund-raising, but an even stronger rationale is based on reputation and future enrollment. The alumni of an institution become the source of key "data" used to promote the institution to future students. Successful and supportive alumni help ensure the recruitment of future classes and the growth of the endowment.

Institutions have always focused on developing quality programs. However, in numerous cases, developing and delivering a quality product is not enough. For higher education, how do we move beyond the quality of our faculty, students, and programs to a relationship that transcends time and space? A missing component has been how to integrate the multiple contact points we have with students and alumni. It has also been difficult to track individuals and tailor interactions to their needs and preferences as those individuals grow and mature. CRM makes these next steps possible.

Learner Relationship Management

It has been suggested that the logical extension of CRM for higher education is learner relationship management (LRM). LRM strategies aim at developing better relationships with learners. To do so requires integrating touch points (e.g., Web, face-to-face, phone), developing hybrid models of student contact (i.e., models that mix face-to-face with online experiences for intake, learning, service), and creating customized relationships.

LRM would focus on key concerns, such as how students are brought into the institution, how they learn, and how they receive services, integrating contacts via Web, phone, and face-to-face interaction. Mark Milliron (2001) asks the following:

> Can students apply for admission online, ask questions about scholarships over the phone, and apply for financial aid in person? Can they access an online syllabus, call help from the tutoring center and enjoy their in-class small group work all in the same semester? Can they check grades online, call a career counselor or explore career options at the career center? (p.3)

The concept of LRM may be particularly appropriate for at-risk learners. For example, students with marginal preparation for college courses are more likely to be at risk if they enroll in online courses, especially when orientation and personal advising sessions are bypassed. These students often lack the skills needed to go it alone. Without an orientation or a connection to an advisor or mentor, they often need help but do not know how to get access to it. If an LRM system can ensure that under-prepared students are guided to situations that provide them with the maximum opportunity for success, course completion and student retention would improve. As a result, the entire system would benefit (Milliron 2001).

Richard Light and his colleagues suggest just how institutions might approach such customization. Their research has indicated that students who integrate the in-class and out-of-class part of their lives get the greatest benefit (and satisfaction) from college. Rather than just building financial aid packages for students, Light suggests we might do well to build educational packages, helping students make connections between in-class and out-of-class activities, personal and professional interests, and campus and community. But for those connections to be relevant and useful, they must be tailored to the students' goals and interests (which often change over time) as well as their ongoing experiences. Such an objective requires the integration of academic and student service functions as well as the application of what we know about risk factors and those that contribute to high satisfaction.

Research has shown that one of the distinctions between students who have an excellent freshman year and those who struggle relates to time management. Sophomores who say they have had a great first year talk about how to spend their time, mentioning time management, time allocation, and time as a scarce resource. Students who struggled through their first year rarely refer to time at all (Light 2001). An institution that designs an LRM SYSTEM might look for evidence, such as through polling, that a student is actively managing his or her time. If the student does not, the institution might provide suggestions for better time management.

Student service professionals have long advised students to get involved in activities. Concrete evidence now indicates that out-of-class activities relate to academic success. A substantial commitment to one or two activities other than coursework (e.g., work, voluntary service, clubs), for as much as 20 hours per week, has little or no relationship to grades. However, such a commitment has a very strong relationship to overall satisfaction with college. Greater involvement correlates to greater satisfaction (Light 2001). An LRM tool might signal an advisor if a student is not involved in activities, allowing the advisor to provide guidance.

As we are discovering recurring patterns among students, we have the opportunity to use our relationship with these students to intervene and alter those patterns (or reinforce positive patterns). Learner relationship management is about more than just tracking students requests for forms and information. We can use what we know to improve student retention and satisfaction, integrating touch points as well as identifying appropriate times and situations in which to intervene.

Components of CRM

CRM is a broad concept, entailing more than the front office automation or data warehousing. A holistic framework is required. The Meta Group describes three components of CRM:

- *Operational* CRM: The automation of processes associated with front office touch points. This might include the Web application process or online registration.
- *Analytical* CRM: The implementation of advanced data management and analysis tools. This allows the institution to extract trends and develop predictive models.
- *Collaborative* CRM: The application of collaborative services (e.g., e-mail, real-time conferencing) to facilitate interactions. The purpose of these collaborations is to improve communication and coordination between customers and service providers (SAS Institute 2000b).

Operational CRM. On the operational side, higher education has been improving the efficiency of student interactions through front-office applications such as online admissions and registration. To date, most CRM efforts have focused here. Operational CRM also requires that multiple channels (e.g., face-to-face, online, phone) be integrated. Recently, there has been a move to integrate front-end applications with back-end processing systems (e.g., ERP, transaction processing, legacy systems). Integrating front- and back-end systems makes processes more efficient (SAS Institute 2000a). By automating the transfer of data among systems, information is always current and available when and where it is needed.

Analytical CRM. Analytical CRM involves the analysis of data created by operational CRM with the intent of improving performance. Several technologies are involved in analytical CRM:

- Data warehousing
- Data mining
- Online analytical processing (OLAP)
- Advanced decision support and reporting tools (SAS 2000a)

Analytical CRM can provide answers to questions such as the following:

- What are the early warning signs of a student who may drop out of college?
- What are the attributes of students who enroll in our institution and successfully graduate in four years?
- What behaviors should be anticipated at certain transition points? (For example, what will happen during the transition from college to work?)
- What strategies work best for particular groups of individuals? (For example, is face-to-face the best intervention strategy for at-risk students, or does the perceived anonymity of the Internet allow for better problem resolution?)

Data warehousing is a process of pulling together the relevant information that will allow you to analyze a customer segment. Data warehouses are often created from data that "lives" in a variety of repositories (e.g., Excel spreadsheets, Oracle databases, ERP systems). Pooling data in a warehouse allows special analyses to be performed.

Once organizations have consolidated data in a warehouse, they can use data mining to sift through large amounts of data to uncover hidden relationships and build predictive models. Analytical tools allow organizations to model specific behaviors and extract trends.

OLAP, also known as multidimensional data analysis, allows information in a data warehouse to be queried and analyzed. While some queries involve only two variables (e.g., GPA, student major), OLAP allows for the analysis of multiple variables (e.g., GPA, student major, gender, high school math scores). OLAP provides the capability to "drill down" from one layer of data to another, putting information in its context and allowing for multiple views of the information. Particularly for student-related issues, multiple factors influence the outcome. OLAP enables organizations to take multidimensional views of information.

Collaborative CRM. Even the best analysis may be unproductive if it cannot be communicated to others. Communication and collaboration are often essential for information to become actionable and to inform decision making. A variety of tools can be used to bring the results of CRM analysis to those interacting with customers as well as decision makers. For example, the record of a high-potential student who is in grade difficulty might be flagged to call the advisor's attention to a potential problem. That advisor might also be able to enter comments or observations to augment the student record. Or the distance education coordinator, as a decision maker, might be able to monitor course completion rates of students involved in a distance education program, allowing for midcourse corrections or programmatic changes.

CRM Applied to Higher Education

Although most CRM applications have been in business and industry, CRM is a good fit in a number of higher education areas. For example, enrollment management involves cultivating a customer relationship with the initial objective of enrollment and a long-term objective of a lifelong relationship. Freshman retention strategies focus on maintaining and strengthening that institution-student relationship. Alumni affairs and development have goals of prospecting, cultivating, and sustaining relationships with those who support the institution. All are likely candidates for a CRM-like approach.

Enrollment management. Enrollment management can be considered a CRM process. First, there are multiple times and methods for interacting with students. CRM can integrate those multiple touch points, allowing those interacting with students to know what has previously happened, whether the contact was by phone, face-to-face, or over the Web. Institutions also seek to improve the process by which candidates are identified and ensure that those who are granted admission actually enroll.

Students get information about a potential college or university in a variety of ways, including print material, Web sites, word-of-mouth, special recruitment events, and face-to-face encounters. But this information might not be coordinated. In some cases the information is contradictory, making it appear as though there is no single version of the truth. It is common for students to receive multiple sets of material through the mail because of overlapping requests or requests to multiple departments, for example. A CRM system would log requests from individual students, noting information requests to multiple departments as well as information that is provided via print, the Web or phone. It can help avoid duplicate mailings. CRM also allows institutions to ensure that there is a single version of the truth so that all information that students receive is consistent. While CRM makes options available, it still requires that institutions rethink when and how they communicate with students. Success will be highly dependent on staff buy-in.

Many institutions "recruit" parents in parallel with students. A CRM system could be used to integrate parental requests and information with that provided to the potential student.

As noted earlier, enrollment management programs have historically analyzed data to find the best fit between students and the institution. CRM provides a highly sophisticated mechanism to look for patterns, quantify trends, and provide timely information to decision makers.

Although enrollment management deals with prospect management, the next step in the process might be for the institution to ensure that sufficient class sections, dormitory housing, and other services are available. Many institutions have encountered difficulty in providing up-to-date information that allows various offices and departments to make necessary decisions based on enrollment data. CRM offers the prospect of making that information more widely available and ensuring that decisions are based on facts rather than guesswork.

Finally, CRM offers institutions the opportunity to learn from the data they collect on prospects, making

future efforts more effective and efficient for the institution and more satisfying for students and their parents.

Student retention. Many believe that the first six weeks of a student's college or university experience are crucial in determining whether freshmen remain at the institution or stay in college at all. Those students who do not bond with the institution are very likely to drop out or transfer by the end of their first year. In effect, if freshmen do not become members of the campus community, they will leave the community. This is tantamount to losing a customer.

Students leave an institution for a host of reasons. Some are beyond the reach of any retention program due to issues such as personal or family problems. But how many students leave because they do not feel welcomed into the community? How many find the environment intimidating and impersonal? One of the techniques associated with CRM is the ability to do one-to-one marketing. While higher education does not market to these students, the ability to tailor messages and programs to individuals could be very valuable. Students who receive e-mail messages about their favorite hobby or receive a special note on their birthday are more likely to feel they are recognized as a person instead of a number. While touching students in these ways may be virtually impossible in the current environment, CRM automates information collection and pushes information to the student. The system can be designed to automatically send an e-mail birthday greeting when the day's date matches the calendar date of the student's birth. More sophisticated triggers, such as critical dates and student interest areas, can be used as well.

For other students, dropping out is the result of making poor choices, sometimes because they lacked the necessary information. CRM allows institutions to send relevant information to students in a just-in-time fashion. Although students might receive all the handbooks they need at the start of the semester, remembering the information or knowing how to access it is unlikely. Timely access to relevant information becomes easy with CRM.

Several symptoms of student difficulty are strongly associated with low grades, including the following:

- The student feels a sense of isolation from the rest of the college/university community.
- The student is unwilling to seek help. (Light 2001)

Knowledge of these indicators is an important part of building a CRM system targeted at improving retention.

The reasons for academic difficulties are predictable, including the following:

- *Poor time management.* Many students study in short bursts rather than spending sustained periods of time on their coursework. The lack of deep study for hours at a time hurts performance.
- *Poor study skills.* Many students take high school study habits to college. For some, the lack of critical thinking skills and the ability to synthesize information from multiple sources presents a problem.
- *Selection of courses.* Some students who struggle show a pattern of taking only large enrollment, introductory courses. This might be because the student wants to get required courses out of the way. And because many introductory courses are large, it is easier for students to be anonymous. Additionally, the courses may not be highly engaging or motivating.
- *Studying alone.* Many students with academic difficulties study alone. Those who study alone are isolating themselves from the opportunity to learn from fellow students. This leads many to increased isolation (Light 2001).

Colleges and universities spend significant sums on student recruitment. Yet, the amount invested in retention programs is unclear. Many in business cite the maxim that it is five times more costly to acquire a new customer than retain an existing one. CRM is a significant strategy used to retain customers. Although the figures are not clear for higher education, there is a very real cost from losing students.

Assume that a hypothetical state institution charges $6,000 per year for tuition and fees. Also assume that 20 percent of freshmen leave at the end of their first year. Although some may leave because their interests and the institution are not a good fit, many leave for preventable reasons. If there are 2,000 freshmen, the lost tuition and fees associated with those students is $2.4 million. Over the lifetime of the student (e.g., the three years remaining to complete an undergraduate degree), the institution loses $7.2 million. This does not take into account the revenue associated with the student as a consumer in the community. Nor does it take into

account the very real personal loss and future income limitation that the student may face as a result of not completing college.

At some institutions, new students might take the place of those who leave, offsetting the loss of tuition revenue. However, the institution must still bear the costs of recruitment and administration for new students.

Academic advising. Advising enables the development of one of the most critical relationships an institution can have with a student—that of advisor and advisee. Almost all institutions encourage students to get to know their advisor as the person who will counsel, mentor, and develop them. However, advisors are often asked to help students without much information on either the individual student or other interactions the student has had with the institution.

When an advisee is first assigned, a folder is often provided with essential information (e.g., date of birth, student number, intended major, entering test scores). The advisor must add other relevant pieces of information and observations. But what if the student has taken a work preference test or a personality indicator assessment? That information should also be shared with the advisor so he or she can make better decisions. Although students might know the results of the assessments, they might not remember to share the information with their advisor and might interpret the results quite differently than an experienced professional would.

To be most effective with students, advisors must use multiple channels (e.g., mail, face-to-face, e-mail, personal digital assistant (PDA) messages). The task of integrating multiple messages to multiple advisees over multiple media is virtually impossible; however, it is routine in a CRM strategy. Retailers can track all interactions with customers, for example. It is possible for higher education to track more interactions than we do today, making judicious use of the information to enhance student success. (Note: privacy and security put boundaries on what personal information is archived and shared.)

Many students have an extended time-to-graduation because they are unable to identify their major soon enough. This may be a combination of not having received information in a timely fashion or not being provided with enough opportunities to get to know others in the field. The same techniques that allow corporations to build communities can be used to help students learn about opportunities. Providing students with access to leadership and personal development opportunities could be handled in a similar fashion.

Fund-raising. Much of fundraising and alumni relations deal with establishing relationships with alumni, finding ways to tailor their interactions, and identifying those who can contribute to their alma mater. One of the first steps is to maintain contact with the individual. The next step involves developing a relationship and being alert to changes in circumstances that might trigger donor behavior. CRM allows institutions to target alumni based on a variety of preferences (e.g., for e-mail correspondence, to hear only about departmental events, for information related to group travel). With the tracking mechanisms of CRM, institutions can begin to determine which techniques work for specific audiences. The challenge of alumni relations is to develop a one-to-one marketing feel even though it is a mass-market environment. Techniques such as CRM can help.

Fund-raising is often segmented into two categories: the mass marketing associated with an alumni association and the more focused relationships associated with individual donors. Both types of fund-raising require the identification, tracking, and management of relationships with key individuals. Fund-raising and building endowments have become critical functions in today's colleges and universities. As a result, tracking prospects, tailoring messages, and strengthening alumni and donor ties with the institution are directly tied to successful fund-raising and institutional financial health.

Relations with major donors often involve three phases of development. The first is identification, where data is collected from a variety of sources to find prospective donors. This may include clipping services that identify alumni who have recently been promoted or research that identifies friends of the institution with significant assets who might be interested in contributing as a part of their estate plan. Once a prospect is identified, a record is created and an owner of the record assigned. That owner is responsible for keeping the record updated, recording preferences, making contacts with the individual, and making changes that relate to vital information (e.g., a spouse passes away). The tools and techniques of CRM can be used in developing individual records, tracking ownership, and keeping materials updated.

The second phase is prospecting, in which a potential donor is asked to become involved more closely with the institution. Depending on the preferences of the individual, this might include receiving an invitation to a football game, attending a concert, or participating in a symposium. The purpose of prospecting is to bring the individual progressively closer to the institution. For major donors, this requires an individual approach. Again, CRM can provide tools that allow prospects to receive individualized notices, remind development staff of events such as birthdays and anniversaries, and ensure that prospects receive the kind of attention to which they are most receptive. At an appropriate point, the potential donor is asked to contribute to the institution. Ultimately, the record of the potential donor can be analyzed for what works and what does not.

The final phase of development is called stewardship. Research has shown that those who have donated in the past are the most likely to donate in the future. Hence, establishing and strengthening long-term relationships with major donors is crucial. Stewardship is focused on maintaining individualized contact with a donor, offering personalized attention at college or university events, and ensuring a strong long-term relationship. All of the information collected at previous stages of development is used in stewardship to grow and strengthen the bond between the donor and the institution. Again, CRM processes can provide critical support through this phase.

Alumni relations activities are often handled separately from major donor programs. One of the key issues in alumni relations is tracking and maintaining relationships with alumni. The emergence of lifetime e-mail accounts for alumni is one step in tracking and maintaining lifelong relationships. Historically, a challenge in alumni relations has been tracking recent graduates as they move, change jobs, and get married (and potentially change names). A lifetime e-mail account makes it easier to maintain contact. Some institutions are experimenting with services such as online courses that will keep alumni attached to the institution as well. Another significant challenge of alumni relations is tailoring messages to a large audience that is not homogeneous. Institutional data on alumni make it possible to tailor messages and automate processes, such as solicitations, in a highly customized fashion. Donors who feel connected to the institution and who feel they are receiving individualized attention are most likely to contribute.

CRM can facilitate fund-raising processes. For example, it can enable the following:

- Integration and management of alumni data from multiple sources (e.g., individual departments; campuswide contacts; contacts via phone, mail, in person)
- Analysis of trends to determine who is most likely to give as well as what techniques are most effective
- Determination of which channels are most effective with alumni groups (e.g., phone, Internet, direct mail)
- Personalization of messages that can then be delivered via Web, mail, or phone

Conclusions

Colleges and universities are relationship-intensive institutions. The collegiate environment strives to develop relationships among students so they can learn from each other. Relationships among faculty and students are also fostered for intellectual and personal development as well as the creation of a professional community. And after students leave the institution, those relationships are broadened and strengthened through alumni channels.

Strong relationships depend on the synthesis and integration of information as well as the ability to personalize contacts. Many college and university services have provided this integration and personalization through manual, laborious processes up until now. However, the processes and technologies associated with customer relationship management hold the promise of helping institutions develop better and stronger relationships with students and alumni.

Customer relationship management integrates three facets: operational CRM, analytical CRM, and collaborative CRM. Operational CRM integrates front- and back-end systems. Analytical CRM analyzes trends and predicts patterns, which can be instrumental in modifying recruitment strategies, targeting specific audiences, and tailoring messages. Collaborative CRM uses collaboration strategies and tools to bring students and service providers closer together. CRM embodies a host of techniques that can be applied to enrollment management, student retention, and alumni relations.

However, CRM is more than a technology or an infrastructure. CRM can also be considered a process and a philosophy. Knowing when an institution is ready for CRM may be evident with a shift in attitude. Figure 22.3 (Hackett 2000) illustrates some of those changes, mirroring the experience of many institutions represented in this book.

A number of elements of the community ideal, such as connections that transcend artificial boundaries and seamless interchangeability, can be approached through CRM. These are the same characteristics that we seek in student services today. Customer relationship management and communities will emerge as strong forces as higher education continues to improve and refine how student services bring value to learners.

Old Culture	New Culture
What's in it for me?	What's in it for our customer?
Inward management focus	Outward customer focus
"It's not my job."	"How can we help?"
Culture of blame	Culture of accountability
Functional silos	Cross-functional teams
Knowledge hoarding is power.	Knowledge sharing is valued.

Figure 22.3 Changes in Institutional Culture

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23

Sustaining the Commitment to Change: Success in the Long Run

Earl H. Potter III

American Association of Higher Education (AAHE) President Yolanda Moses, writing in the June 2001 *AAHE Bulletin*, notes that sustaining change in institutions of higher education is a consistent theme among the people with whom she has spoken. "Even veteran change agents...desire...greater assistance in both conceptualizing and implementing new leadership and capacity-building models," she writes. Sustaining change is also an issue for each of the institutions whose stories are presented in this book—and these leaders are among the most successful in the nation at building and implementing new models for serving students. Other institutions across the nation have not been so successful.

The reasons for success and failure are many and complicated. Change initiatives at colleges and universities, even initiatives with a student service focus, are not the same. Some are limited to student services; others are embedded in larger, campuswide transformations. Some are driven by changes in technology; others focus on changes in culture. Still others involve changes in both technology and culture. Thus, the challenges vary. The difficulty of creating and sustaining change increases with the scope and complexity of the vision. Furthermore, before change can be sustained, it must occur—and creating change is a challenge of its own.

At one major U.S. research university, let's call it ILU, student services was one of five administrative systems being redesigned in anticipation of the year 2000. The budget for this project initially was $60 million. Some of the most well-known consultants in the nation were engaged, task forces were launched, a vision was shared, and work was begun. The year 2000 came and went. More than $100 million was spent, but student services were not transformed. The consultants departed, faces around the table changed, and the project was abandoned. At smaller institutions, the scale has been less dramatic but failure has been just as painful.

Leading project managers have defined success as "getting the desired results on time and within budget." There is a problem with this definition, however. It suggests that success is something that can be won like a football game when, in fact, institutional success is more like physical conditioning. You might reach a peak level of performance, but you cannot be "done." With respect to organizational change, Peter Vaill (1991) suggests the challenge is something like "continuous white water." No longer do institutions "shoot the rapids into a quiet stretch of river and stop for a picnic." The demand for change is continuous. A project which, when completed, does not leave the institution more ready for the next project is not fully successful.

The reality of continuous white water is most evident at institutions that have been successful at large-scale change only to find that the challenge

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continues. In the mid-1990s, the University of Minnesota gained a national reputation for the quality of its Web-based student services. Yet, advancing technology and rising student expectations meant that three years after implementing leading-edge, new models, the university was again called to transform the way it delivered services to students. At Boston College, the completion of Project Delta revealed further needs for change. Elements of the vision for Project Delta had not been completed. Yet the project's leadership team was worn out. Change had been won, but many of the forces resisting change were still present. Moreover, there were signs that some wanted to undo some of the change that had occurred.

Both the University of Minnesota and Boston College were successful in major change efforts, but one is more ready than the other to continue the process of change. At the University of Minnesota, early changes won broad support; at Boston College, the specter of threatening change roused strong resistance. Good project management at both institutions resulted in successes, but the commitment to continuous change at the end of Project Delta was less widespread at Boston College. Building the capacity to sustain the energy for change requires that institutions achieve change with their resources and vision intact. Building the capacity for change is no small task.

Sustained Commitment to Change

Daryl R. Conner (1993), author of *Managing at the Speed of Change*, offers a model that describes the institutionalization of change. Change, says Conner, is not institutionalized until the values, behaviors, and processes associated with change are internalized by a critical mass of the institution's members. From the introduction of a proposed change to institutionalization, employees pass through several stages. At each stage, employees may fall off the path toward change. When enough do so, the change initiative falters. Unless enough employees complete the journey, energy for further change will be diminished.

First phase: preparation. In the first phase of this process, preparation, employees become aware that change is being considered. The project is introduced, the vision is shared, and the implications for each individual are explored. In large, complex organizations, there is a very great risk that this phase will receive too little attention. Project leaders will fully understand the vision, as will members of study teams and perhaps colleagues in their units. However, faculty, for example, might give little attention to the project. It is easy for those who are charged with moving ahead quickly to be content with developing commitment within the project team while ignoring the information needs of the wider community. Boston College's experience, however, should be a caution to project leaders in similar situations. Most large change projects eventually need the support of the campuswide community. This support enables project leaders to secure continued commitments to funding or widespread involvement in the training of staff to use new systems. Preparation takes time, but a lack of preparation can raise later resistance to levels that threaten the viability of the project.

Second phase: acceptance. In the second phase of the institutionalization process, acceptance, members of the community come to understand what life with the change will be like. If the change will benefit them, acceptance begins to grow. If the change costs them something, they will either need to see that there will be offsetting gains or that they will have to change to keep the value that remains. Understanding can be hard to achieve when new skills or new cognitive frameworks are required. For example, every student service change project includes a commitment to student-centered services. However, many student service employees have never witnessed services to students in a student-centered environment. These employees may hear the words but have no idea what they mean. Furthermore, they might not be able to envision themselves in such an organization. In such cases, understanding cannot occur without a substantial investment in education. At Johnson County Community College, education took the form of an intensely participative process that took five years. At institutions other than JCCC, this process has included best practices site visits, benchmarking, and extensive skills training. The most effective organizations will manage this process to develop a critical mass of employees who understand the vision and, more importantly, can see themselves as successful participants in the vision.

Depending on the culture of the institution, this process might proceed as it did at Carnegie Mellon University or James Madison University. At Carnegie Mellon, some employees quickly came to see the change as both possible and positive. They remained. Others

were not able to envision their place in the new organization. They left. However, Carnegie Mellon is in a rich labor market where people move freely from institution to institution. James Madison is in a much more isolated environment. In its case, a fundamental commitment was made to bring all current employees forward with the change. Such commitment to employees requires more time, patience, and investment in education. Different cultures and environments require different approaches to the challenges of this stage.

Third phase: commitment. In the third phase of this process, commitment, the organization "installs" and "adopts" changes. These steps correspond to what happens when two corporations are merged. New systems "go live"; old systems are deactivated. Installation and adoption happen when the new student service center opens or all registration must be done on the Web. Some projects, in fact, stop at this point. Others cannot succeed unless new work behaviors become part of employees' internal systems. The institutionalization of an integrated service team is, perhaps, the most demanding of all changes in this respect. The change design at Seton Hall University is a good example of this kind of change. In this situation, committed leadership, a clear vision of the end point, and a strong performance management system are essential. Strong presidential leadership alone will not result in the internalization of a new work culture. Internalization requires shared leadership across and throughout the institution.

The importance of strong middle management is underscored by the research of Quy Nguyen Huy that was published in the September 2001 issue of the *Harvard Business Review*. Over a six-year period, Huy interviewed more than 200 senior and middle managers, concluding that middle managers are "the best bet for success" in implementing radical change. The results of this study are consistent with the research of Jim Collins and his team as reported in *Fast Company* in October 2001. Collins reviewed the histories of 1,435 "good" companies and identified 11 that became "great." Having the "right people in the right places" was a critical factor in the ultimate success of great companies.

Together, these studies shed some light on the contradiction between the fact that leaders usually assume that midlevel managers will resist change and the fact that midlevel managers are essential levers in making change. The key is to identify those managers who share the following five characteristics:

- They volunteer to be part of change.
- They criticize constructively.
- Their influence exceeds their formal authority.
- Their past history demonstrates versatility.
- They are "emotionally intelligent."

Midlevel managers with these key characteristics are important assets in building the acceptance and understanding that underlie durable institutional change. Once identified, they should be put to good use. Successful Best Practices Partners have followed this advice.

At the University of Minnesota, well-respected functional staff members who were good communicators and had positive attitudes toward change shared leadership. They played a key role in building support among staff members who were more threatened by radical service transformation. At the University of Northern Kentucky, President James Votruba tracks the institutionalization of change with a matrix that lists university leaders across the top of the page and separate initiatives down the left-hand margin of the page. The order in which the initiatives are listed on the left is noteworthy, running from the highest level, most general issues to the most personal—curriculum and the allocation of resources. Votruba keeps track of individuals and the units they lead using this matrix to note the concrete evidence that they are committed to change. It is important to emphasize that verbal support is not tracked; concrete changes and results are tracked. Real support shows in the commitment of resources, time invested by the leader/manager, barriers removed, problems solved, deadlines met, processes redesigned, and goals achieved.

In both of these examples, the important point is that leadership is actively managed toward the goal of institutionalizing change. Institutionalization in the end requires internalization. New goals, behaviors, and values become part of the way that employees see the world and do their jobs. When change is internalized, leaders can take their hands off the wheel and the institution will continue in the same direction. If change falls short of internalization, staff behaviors will drift back toward the familiar. Building the capacity for change requires that change programs actively address

each of the three phases of change and achieve lasting institutional commitment to new ways of doing business.

Design for Success

While it is true that all change projects must pass through the stages of preparation, acceptance, and commitment, the challenges associated with making this journey depend on three other things: cost, scope, and timeline. The changes described in this book differ significantly across these dimensions, but they all share one thing in common: if the project was successful, its cost (not just in terms of dollars), scope, and timeline were in balance and the whole matched the capabilities of the institution. In planning for change, leaders can increase their chances of success by designing for a match between institutional culture and project requirements.

Project cost. It might appear that the cost of a project is determined by a set of objective parameters. If this were the case, there would be many fewer failed projects across the country. Many cost factors are hard to estimate, and a number of these are hard to know before a project begins. For example, the cost of staff training depends upon the size of the gap between what staff members know how to do now and what they will be required to do with new technology and business processes. At the outset of most projects, the design of new processes has yet to be determined. Therefore, it is hard to establish training budgets early in the game and easy to underestimate the costs. In fact, many organizations (including some in this book) provide little if any budget for staff training in the program design.

There are more troublesome reasons why determining the cost of a change project might be difficult, however. At the institution we're calling ILU, the cost of the project was "low-balled" because it was determined that the faculty would not support an investment of the size that outside experts identified as a realistic projected project cost. Leaders hoped that early successes would increase support for the project and allow the budget to be adjusted up as the project progressed. Other institutions across the country have run into trouble in working with vendors whose enterprise solutions fell behind delivery schedules. In some cases, product delivery delays simply cost money. In many others, delays killed projects entirely.

Project scope. Leaders at both Boston College and The University of British Columbia undertook the transformation of their institutions. The student service area was only one component of larger projects. At The University of Texas at Austin, the change project was focused on creating best-in-class Web-based services. At Brigham Young University, the project was even more narrowly focused on creating a Web-based freshman planning and registration system. While each of these projects required good leadership, an appropriate budget, and successful community engagement, the broader the scope of the project, the greater the challenges in gaining the commitment of the right number of people to the change.

When the numbers of people and their diversity increase, the array of vested interests that must be addressed and the consequent challenges of problem solving and communications also increase. The increases are not linear. The increasing complexity requires both a different set of change leadership skills and a wider distribution of leaders and change agents who have those skills. Both of these factors can increase the cost and time it takes to bring about change.

At UT Austin, the resources available matched the scope of the project. At Boston College, the resources devoted to the project were stretched to the limit. A certain amount of success was achieved because of the dedication of those who led and participated in the project. However, it is not clear that the institution built its capacity for further change as a result of Project Delta. Some of the reasons for these situations lie in the nature of the cultures of the two institutions as well as the scope of the projects. At UT Austin, the goal of being best-in-class was widely accepted across campus. At Boston College, the goals of Project Delta were not as widely accepted. The challenges of gaining both acceptance and commitment were harder and never fully achieved at Boston College. Thus, with the completion of the project, support for continued change faded.

Project timeline. The same challenges, though on a smaller scale than at Boston College and UT Austin, can be seen at Seton Hall. In this culture, high value was given to stability. Change initiatives instituted by management were not warmly welcomed as a matter of principle. Resistance to change or anticipated resistance to change played a significant role in designing for success at JCCC as well. Both of these institutions were successful in bringing about change, but their approaches were very different. At Seton Hall, the project was

approached via a fairly traditional, comprehensive project management process. Leaders, however, underestimated the degree of resistance to change they would meet and therefore underestimated the change leadership energy that their project would take. Nonetheless, by the addition of resources and continued leadership pressure, they achieved success. Leaders at JCCC overplanned for resistance, giving years to the education and planning process. So much did participants expect resistance that they were surprised at how fast the community accepted the change when it occurred.

Project timelines are not just a function of the project's size. They must also be designed to accommodate the process of winning support for change. A change-ready culture requires less time for this process. The process can be shortened with strong and persistent leadership, but the development of sufficient leadership strength takes time in larger, more complex organizations. The examples of Seton Hall and JCCC show that approaches can vary substantially, but these different approaches still affirm that it takes time to change cultures. Just how much time it takes depends on how much change is required. Change that is closely aligned with institutional values, as was the case with UT Austin, will require less time. Change that threatens traditional values can take years, even with strong leadership.

Leverage for Change

The first institutions to make a commitment to the transformation of student services confronted an environment that was very different from today. The challenges they faced included the high costs of customizing enterprisewide software solutions. These costs, in turn, drove institutions to push to develop common processes for specific tasks despite the different subcultures of units throughout the institution. In addition, the high cost of changing enterprisewide solutions pushed institutions to address many institutional issues before the institution was ready. These issues included organizational structure, decision-making processes, and the degree of centralization and decentralization of administrative work. The costs of addressing these institutional challenges were significant. The resistance raised in challenging established routines was great, and the implications for future efforts to change were enormous.

In a few short years, this situation has changed entirely. Louisiana State University's creation of a digital infrastructure for student services underscores the difference. Web-based services allow for the presentation of a seamless service environment with backroom systems that are not yet integrated. Data to support decision making can be drawn from multiple sources and presented as if data resided in a common data warehouse. Information sharing made possible by the Web allows a student a one-stop experience while staff members still work in offices at different ends of the campus. The leverage offered by technology will continue to increase.

Costs are lower if structures and processes reflect the way in which service is, in fact, delivered. However, these changes do not have to precede a change in the way that service is delivered. Moreover, changes in the ways that service is delivered can now increase support for changes in backroom operations, both by making these changes appear to be reasonable and by decreasing the risks associated with failure.

A second lever for change is the changing nature of our students. For example, after years of preparing for change, leaders at JCCC were surprised by the rate at which students adopted Web-based services. Leaders at the University of Minnesota were pleased with the initial rate of adoption of their Web-based services but were overwhelmed when utilization rates rose to hundreds of thousands of hits per month. The downside of this surprise is the race to keep the capacity of new systems growing at a rate that exceeds the growth of student demand for services. This challenge pushed the University of Minnesota, while successful in all other respects, to its limits in meeting the need for change.

The overwhelming student acceptance of Web-based services creates demands that pull services from university systems. The alternative push of services out to customers who are not yet familiar or ready for new ways of doing business requires great internal commitment and cohesion. On the other hand, when customer demand creates forces that pull new services, much of the resistance that would otherwise surface fades. Resistance often comes from people who fear that their customers will reject new services and new ways of doing business. Concerns may be expressed legitimately or may mask other, more personal issues. Nonetheless, when customers demand the services that the university is working to create, change comes more quickly and

easily. Furthermore, because success is more likely, the university more easily develops increased capacity for further change.

Sir John Daniel (2001) underscores this point in his discussion of the lessons learned during his leadership of the Open University in the United Kingdom and the United States. Writing for *The Chronicle of Higher Education*, Daniel notes that the number of students using online connections rose from 60,000 to 150,000 from 1999 to 2001. The prospect of such growth fueled an explosion of investment in online education during the 1990s. However, Open University students "use the new technology for specific services—making administrative transactions, obtaining documents and information, and communicating with peers and faculty—much more than to study course material." Katherine S. Mangan, writing in the October 5, 2001, edition of *The Chronicle of Higher Education*, emphasizes this point. Referring specifically to online MBA programs, she quotes former Cornell University administrator Gene Ziegler as saying, "Everyone thought it was going to take off and if they didn't get into it right away, they'd miss out. All of us, including me, misread the market. It's going to happen, but it's going to be slower to build a following." These experiences define the difference between "push" and "pull" in the marketplace. There is a tremendous "pull" for more and better on-line student services. The same cannot be said for on-line academic programs.

The pull of services from universities is closely related to a third lever for change. Students have long expressed discontent with standing in lines for student services and/or being bounced from office to office to receive services. Countless student service employees have faced this student discontent, but, in most cases, the expression of discontent did not create change. Why should student discontent or student demand for service emerge as such a strong force for change now?

At Seton Hall, change leaders found that employees were deeply attached to the stability of their environment. The desire to maintain the status quo is so common that any college or university president speaking at a gathering of higher education leaders can get a laugh by comparing the difficulty of creating change on campus to moving a graveyard. One characteristic of cultures in which community members prefer stability is that they are inward looking. People tend to stay in positions for a long time; there is little movement into the institution by outsiders, and few people tend to pay much attention to the way things are done elsewhere.

In the last two decades, corporations have developed a number of sophisticated processes for gathering information about best practices in business. These processes are aided by tools for assessing the experiences of customers and bringing these data together to create indicators that point the way for change. One excellent example is the work of Robert S. Kaplan and David P. Norton (1996), whose Balanced Scorecard helps organizations both identify and array the best indicators of success. A second example is the work of Robert S. Camp (1989) on benchmarking. Benchmarking is now a familiar process for identifying best practices that can help organizations shape their own strategies. One of the most important innovations supported by this process is the practice of looking to organizations whose purpose is very different from one's own. The search outside one's own peer institutions for best practices has led university leaders to examine, for example, the work of the TIAA-CREF call center as a model for building student service centers. Many in the higher education community have now adopted the Balanced Scorecard, benchmarking, and other practices. In fact, the very existence of the IBM Best Practices in Student Services Forum, as well as this book, gives evidence of this movement.

Tools for the measurement of results, the mining of data hidden in university files, and the compilation of these data into meaningful indicators foster change (see chapter 22). A look outside one's own institution now offers more than individual anecdotes that can easily be discounted. The discontent of students can now be expressed in terms that demonstrate both the magnitude of the problem and the contexts that show that discontent is not simply the normal state of university students. Still, most of these approaches yield data that take time to assemble and present. Change leaders also need real-time data that are available as decisions are being made. These data are now available through Web-based survey tools such as eePulse (see *www.eepulse.com*), created by former University of Michigan faculty member Theresa Welbourne. This tool allows change leaders to survey employees weekly. The data, reported in real-time, can be segmented by unit, job/role, or any other significant demographic indicator and can yield

information concerning employee feelings about changes or the degree to which they understand new initiatives. Change leaders can then adapt their strategies immediately. Just as important, gathering and responding to data in this fashion lets employees know that university leaders care about the how they are able to assimilate changes. The eePulse survey tool even offers the capacity for online responses to open-ended survey questions included in the weekly survey. Not only are the data available instantaneously, but responses to questions can be provided just as expeditiously. Welbourne's research shows that organizations that exercise this degree of care for employees perform significantly better than those that do not.

The growing use of tools such as benchmarking and survey-guided change management can be seen in the work of regional accrediting agencies to integrate some aspects of the Malcolm Baldrige National Quality Award standards for higher education into their review processes. Thus, it is harder and harder to ignore the world outside the college or university. Change leaders who use these tools have an easier time both creating and sustaining the momentum for change on their campuses.

The Future of Change

Maxwell W. Hunter II (1969), writing in the *Harvard Business Review*, argued that change may be inevitable, but those who led the "revolution" are not the ones to lead change in the future. Hunter's point is that change leaders become attached to the order that they have created. They tend to miss the signs that predict the next discontinuous change. Those at the forefront of change in higher education run this risk as well. As a result, some may wonder exactly what we mean when we talk about sustaining the commitment to change. A careful read of the chapters in this book shows that, for some authors, sustained commitment to change means a commitment to the goals of the project they have led. In other cases, the authors are writing of a commitment to the process of change itself.

A change in the way students access services also stands to reduce the demand for a leading service innovation (such as a one-stop center) even as universities in the second wave decide to move in this direction. Foot traffic is declining at one-stop student service centers at institutions that also have strong Web-based services. These changes have led David Hollowell, executive vice president of the University of Delaware, to begin talking about no-stop student services. Despite all the dialogue about continuous change, or continuous quality improvement for that matter, most university leaders still hope for a time when change will be complete. It is the rare leader who is willing to let go of the new order she or he has created to pursue the next wave of change.

Besides this risk, we must acknowledge the fact that change leadership is hard work. Leaders at Boston College did not overstate their case when they described themselves as "worn out" after several grueling years of project leadership. Sustaining the commitment to change requires that we learn some new lessons. These include sharing leadership widely so that leaders may move into and out of the most demanding roles so the organization as whole can maintain leadership vitality at its core.

In the end, for all of our preparation we are likely to be surprised by the next wave of change. It could come as a result of the forces of globalization acting on the world of higher education or it could result from the increasing role of visual information media in learning. Perhaps it will emerge from the extension of personal computing or the application of neural networks to systems management. It might be possible that competency-based certification will change the shape of higher education or that the increasing gap between the haves and have-nots will change the shape of our whole society and the roles that we play in it.

From whatever source the next major changes emerge to shape higher education, it is likely that we will not welcome change with open arms. It is also likely that our interest in sustaining a commitment to change is limited to the world as we know and understand it now. The human response to change does seem to be a constant. Yet our collective capacity to accept what is new and incorporate it into our cultures is also an important facet of human capacity. Thus, the tension between resisting and embracing change is likely to continue. Recognizing this tension should comfort leaders who might otherwise believe that good leadership can make change easy. It will never be easy—and that's why we need leaders to create and sustain change.

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Editors

Darlene J. Burnett is an independent consultant who helps institutions create student-centered experiences and an environment that enables the delivery of high tech/high touch services. She brings an in-depth knowledge of higher education, having spent the last 13 years working with institutions on a range of issues. During her last 10 years with IBM, she helped colleges and universities address student service challenges and develop solutions based on best practice models.

In 1994, Burnett began research on student-centered services with the goal of identifying best practices. This resulted in the development of an IBM consulting strategy and model for best practices in student services. She has incorporated this model into the design and development of Internet-enabled student services and one-stop service centers coupled with the infrastructure and support needed to sustain high levels of student satisfaction.

Burnett has consulted on improving student services at colleges and universities in Canada and the United States. In addition, she managed the best practices forum, has written numerous publications and co-edited *Planning for Student Services: Best Practices for the 21 Century*. She is a frequent presenter at conferences and campus events and continues to consult with IBM for best practices in student services.

Before working with Higher Education Industry at IBM, Burnett held a variety of management positions within IBM, including managing a group of more than 100 programmers providing worldwide, 24-hour support for a critical real-time software application. She has been recognized at IBM for her achievement in improving and integrating existing processes to enhance effectiveness, quality, customer satisfaction, and staff satisfaction.

Burnett developed administrative applications for Pittsburg State University before joining IBM. At The University of Kansas, she developed academic computing support. She was also a faculty member and department chair of the CIS program at Johnson County Community College.

Burnett received a bachelor's in business administration with majors in computer information systems and accounting from Pittsburg State University and an M.B.A. in organizational behavior from the University of Missouri.

Diana G. Oblinger, Ph.D., is an independent consultant who focuses on higher education issues, particularly distributed learning and institutional transformation. She retains academic affiliations with the Kenan-Flagler Business School at the University of North Carolina at Chapel Hill and serves as an adjunct professor at North Carolina State University. She also consults with IBM and the SAS Institute and has collaborated with PricewaterhouseCoopers on projects such as developing a distance learning plan for the Virginia Community College System and the development of eArmyU.

Oblinger is also a senior fellow with the EDUCAUSE Center for Applied Research. The center provides applied research and analysis to help higher education leaders make better decisions about information technology. Oblinger directs the development of Research Bulletins, which synthesize current issues for college and university executives.

Previously, Oblinger served as the vice president for information resources and the chief information officer for the 16-campus University of North Carolina system. Oblinger was responsible

for strategic planning and policy development for information technology as well as for collaborative programs in teaching and learning with technology, student services, and information technology procurement. UNC is the nation's second largest university system.

Over a 10-year period, Oblinger held a variety of management positions within IBM, including academic programs and strategy, executive and academic consulting, and she was the IBM director of the Institute for Academic Technology. Before joining IBM, she served on the faculties of the University of Missouri-Columbia and Michigan State University. At the University of Missouri, she served as an academic dean and was recognized for her work in student recruitment, retention, faculty development, and student computing.

Known for her leadership in teaching and learning with technology and distributed learning, she serves on boards such as the EDUCAUSE National Learning Infrastructure Initiative, the Southern Regional Education Board's Distance Learning Policy Laboratory, and the Editorial Board of Open Learning. She is a member of the Board of Visitors for the Air University, the educational arm of the United States Air Force. Oblinger also has testified before the U.S. House of Representatives Subcommittee on Technology.

A frequent keynote speaker, Oblinger is the co-author of *What Business Wants from Higher Education*, which received the 1999 Frandson Award for best literature in continuing education. She is also co-editor of four books, *The Learning Revolution*, *The Future Compatible Campus*, *Renewing Administration*, and *The "E" Is for Everything*, as well as the author or co-author of more than two dozen monographs and articles on higher education and technology topics.

Oblinger has received outstanding teaching and research awards and was named Young Alumnus of the Year by Iowa State University. She holds three degrees from Iowa State University: a bachelor's in botany, a master's in plant breeding, and a Ph.D. in plant breeding and cytogenetics. She is a member of Phi Beta Kappa, Phi Kappa Phi, and Sigma Xi.

About SCUP

The mission of the Society for College and University Planning is to promote the practice of comprehensive planning in higher education by developing and disseminating planning knowledge. SCUP members span multiple planning disciplines—from facilities, academic, information technology, and student services planning to fiscal and resource allocation. All types of member institutions, systems, governing boards, and commercial firms support the value of innovative, collaborative, and multidisciplinary approaches to planning issues.

SCUP was founded in 1965 and has 4,400 institutional and individual members from more than 25 countries throughout the world.

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Innovation in Student Services: Planning for Models Blending High Touch/High Tech

In this follow-up to *Planning for Student Services: Best Practices for the 21st Century*, the Society for College and University Planning continues to provide readers with the most up-to-date information on the changes that technology and process reengineering are making to student services. Not only will readers learn the general trends in the field, but they will also read case studies of specific higher education institutions' initiatives and planning considerations. Many institutions are represented in this publication, made possible in part through support from IBM. So whether the institution is small or large, two-year or four-year, public or private, readers will find this book valuable in their student service planning efforts.

The publication of this book advances SCUP's mission of promoting the practice of comprehensive planning in higher education.

Alan Charles Freeman, Director
Planning, Design, and Construction
San Jose State University
2001–2002 SCUP President

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